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Societal Responses As Moderators of the Health Consequences of Wife Abuse

by

Pamela Anne Ratner ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial
fulfilment of the requirements for the degree of Doctor of Philosophy

Faculty of Nursing

Edmonton, Alberta
Fall 1995

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August 25, 1995

Rigor alone is paralytic death, but imagination alone is insanity.

Gregory Bateson

University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Societal Responses as Moderators of the Health Consequences of Wife Abuse submitted by Pamela Anne Ratner in partial fulfillment of the requirements of the degree of Doctor of Philosophy.

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Abstract

In order to examine the effectiveness of societal responses in alleviating the effects of wife abuse on women's health, a series of structural equation models were estimated. Data from 12,300 women who participated in the Statistics Canada, *Violence Against Women Survey* were analyzed via LISREL. Wife abuse was conceptualized to take five forms: physical abuse, threats of harm, sexual abuse, dominance or control, and emotional abuse, all of which were postulated to arise from specific acts of aggression or abuse. This conceptualization was placed within a progression of models that specified that several immediate health responses emerged as consequences of abuse: physical injuries, psychopathology, alterations to one's psyche, anger, and alcohol and drug use. In turn, these immediate health responses, and the nature of the abuse, were postulated to affect women's help-seeking behaviour, particularly in relation to the support offered by physicians and nurses, informal sources, the clergy, shelter staff, counsellors, and the police. While controlling for income, education, age, whether the abuse occurred during pregnancy, and the frequency of the abuse, the effects of the immediate health responses and the sources of support on women's long-term health status were determined.

The measurement model failed to account for the observed covariances among the indicators of abuse, the immediate health responses, and sources of support. This failure calls into question the conceptualization of abuse underlying such measurement tools as the Conflict Tactics Scales and points to the need to incorporate information beyond the potential severity and frequency of the abuse.

The nature of abused women's immediate health responses and their help-seeking behaviour is determined, in part, by the nature of the abuse. Contact with the police and emergency shelters are positive interventions that enhance the health of abused women. When abused women come into contact with physicians, nurses, the clergy, or counsellors, as a result of the abuse they have experienced, they are likely to receive no gain or incur further losses to their health status.

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Contents

1 Introduction 1

Background of the Problem 1

Research Questions 3

Conceptual Issues 3

Summary 6

2 Literature Review 7

Health Consequences of Wife Abuse 8

General Health Consequences 8

Physical Injury 9

Psychosomatic and Somatic Consequences 12

Psychological Consequences 13

Alcoholism 16

Prescription Drug Use 18

Summary 18

Determinants of the Help Seeking Behaviour of Abused Women 19

The Nature of the Abuse 19

Abuse During Pregnancy 21

Age 22

Health Status 23

Socio-economic Status 23

Geography 24

Summary 25

The Services Available to Abused Women 25

Informal Sources of Help 26

Shelters 27

Social Work and Counselling 29

Police Services 31

The Courts 35

The Clergy 37

Health Services 38

Summary 44

Conclusions 44

3 Methods and Procedures 46

Purpose of the Study 46

Research Design 46

Sample and Data 47

Weighting 48

Specification of the Models 50

Analysis 51

Ethical Considerations 51

4 The Health Consequences of Wife Abuse 53

- The Model 53
- The Measurement Structure 55
  - The Indicators 57
  - The Causal Model of Wife Abuse 62
  - The Measurement Error 63
- Demographic Characteristics of Ever Married Women 67
- Ever Married Women's Exposure to Abuse 67
  - Exposure to Physical Aggression 67
  - Exposure to Threats of Harm 69
  - Exposure to Forced Sexual Activity 70
  - Exposure to the Exercise of Dominance or Control 70
  - Exposure to Emotional Abuse 71
  - Frequency of Physical Aggression or Forced Sexual Activity . . . 71
  - Exposure to Physical Aggression or Forced Sexual Activity During Pregnancy 71
- Ever Married Women's Health Status 72
- The Univariate Characteristics of the Indicators in the Model 72
- The Covariance Matrix for the Model 74
- Getting LISREL to Run 74
  - The Selection of an Estimation Procedure 74
  - Setting Start Values 76
- The LISREL Estimates for the Model 76
  - Indications of Model Fit 76

The Coefficients 78

5 The Immediate and Long-Term Health Consequences of Wife Abuse 81

The Model 81

The Measurement Structure 83

The Indicators 83

The Measurement Error 85

The Immediate Health Consequences of Wife Abuse 85

Physical Injury 85

Psychopathology 86

Altered Psyche 87

Anger 87

Alcohol and Drug Use 87

The Univariate Characteristics of the Indicators in the Model 88

The Covariance Matrix for the Model 88

Modifications Made to the Model 89

Revisions to the Immediate Health Responses Component of the Model 90

Revisions to the Causal Model of Wife Abuse 91

The LISREL Estimates for Base Model 2 92

The LISREL Estimates for Final Model 2 99

The Causal Model of Wife Abuse 105

The Immediate Health Consequences of Wife Abuse 107

6 The Effects of Societal Responses to Wife Abuse on the Health Status of Abused Women . . . 111

The Model . . . 111

The Measurement Structure . . . 114

The Indicators . . . 114

The Measurement Error . . . 115

The Help-Seeking Behaviour of Abused Women . . . 115

The Covariance Matrix for the Model . . . 116

Modifications Made to the Model . . . 116

The LISREL Estimates for the Model . . . 121

The Determinants of Abused Women's Utilization of Select Services . . . 129

Abuse during pregnancy . . . 130

The frequency of the abuse . . . 131

The nature of the abuse . . . 132

Referrals from other sources of support . . . 134

The Effectiveness of Societal Responses to Wife Abuse . . . 134

7 Validating the Model and Examining Historical Trends . . . 138

Validation of the Model . . . 138

The Covariance Matrices for the Validation Models . . . 138

Model 1 . . . 139

Model 2 . . . 141

Model 3 . . . 142

Historical Trends . . . 154

Abuse Experienced Within One Year of the Survey 154

The Covariance Matrix 154

The LISREL Estimates 155

Abuse Experienced More Than Ten Years Prior to the Survey 163

The Covariance Matrix 163

The LISREL Estimates 163

8 Discussion 176

Limitations 176

Discussion of Major Findings 178

The Causal Model of Wife Abuse 178

The Health Consequences of Exposure to Abuse 180

Physical injuries 182

Psychopathology 182

Alterations to the psyche 183

Anger 183

Alcohol use 184

Drug use 184

The Determinants of Abused Women's Use of Select Support Services 185

Physician/nurse support 185

Informal support 186

Clergy support 187

Shelter support 187

        Counselling support 188
        Police support 189
    The Effectiveness of Societal Responses 189
        Physician/nurse support 189
        Informal support 191
        Clergy support 192
        Shelter support 192
        Counselling support 193
        Police support 193
  Conclusion 194

References 197

Appendix A: Correlation/Covariance Matrices 215

Appendix B: Several Estimates of Model 3 224

Tables

1 Current Marital Status of Women who have Ever Been Married or Lived in a Common-Law Relationship with a Man 68

2 Rates of Physical Aggression Committed by a Current Partner 69

3 Rates of Physical Aggression Committed by a Former Partner 69

4 Rates of Acts of Dominance or Control Exercised by a Current Partner . . . 70

5 Rates of Acts of Dominance or Control Exercised by a Former Partner . . . 71

6 Statistics for the Indicators in Model 1: The Health Consequences of Wife Abuse 73

7 The Structural Coefficients of Model 1: The Health Consequences of Wife Abuse 79

8 Rates of Physical Injury in Ever-Married Women who Experienced Abuse 85

9 Rates of Psychopathologic Responses in Ever-Married Women who Experienced Abuse 86

10 Rates of Psychic Responses in Ever-Married Women who Experienced Abuse 87

11 Statistics for the Indicators in Model 2 89

12 The Inexplicable Structural Coefficients of Base Model 2: The Immediate and Long-Term Health Consequences of Wife Abuse 94

13 Proportions of Explained Variance in the Latent Endogenous Concepts of Base Model 2 97

14 The Structural Coefficients of Final Model 2: The Immediate and Long-Term Health Consequences of Wife Abuse (with all ever-married women) 99

15 Proportions of Explained Variance in the Latent Endogenous Concepts of Final Model 2 (will all ever-married women) 104

16 Straus's Severity Weights Compared to the Estimated Effects of the Causal Indicators of Physical Abuse on Physical Injury 107

17 Rates of Utilization of Various Sources of Help in Ever-Married Women who Experienced Abuse 116

18 The Structural Coefficients of Model 3: The Effectiveness of Societal Responses in Moderating the Health Consequences of Abuse 121

19 Proportions of Explained Variance in the Latent Endogenous Concepts of Model 3 128

20 The Structural Coefficients of Model 1: Cross-Validation 139

21 The Unstandardized Structural Coefficients of the Initial and Validation Model 3 143

22 The Unstandardized Structural Coefficients of the Final Validation Model and the One Year Model 156

23 The Unstandardized Structural Coefficients of the Time-Specific Models 165

24 The Total Effects of the Selected Sources of Support on Current Health Status in the Time-Specific Models 173

Figures

1 Model 1: The Health Consequences of Wife Abuse 54

2 Model 2: The Immediate and Long-Term Health Consequences of Wife Abuse 82

3 Effects Added to Base Model 2 93

4 Effects Added to Final Model 2 (will all ever-married women) 103

5 Model 3: The Effectiveness of Societal Responses in Moderating the Health Consequences of Abuse 113

6 Effects Added to Model 3 120

7A Validated Model 3: The Effectiveness of Societal Responses in Moderating the Health Consequences of Abuse 152

7B Validated Model 3: The Effectiveness of Societal Responses in Moderating the Health Consequences of Abuse 153

Chapter 1

Introduction

Over the past several decades, professional groups and government agencies have increasingly acknowledged the extent to which women experience violence, particularly that which is perpetrated by men known to them.[1] Between the years 1974 and 1992, 1,435 Canadian women were killed by their spouses (Wilson & Daly, 1994). In 1988, 57% of all female victims of homicide in Canada were killed by someone with whom they shared a domestic relationship (Canadian Centre for Justice Statistics, Law Enforcement Program, 1989). A registered-married woman is nine times more likely to be killed by her spouse than by a stranger (Wilson, Daly, & Wright, 1993).[2] Countless other women suffer from multiple physical and mental health problems as a result of the violence they experience within their intimate relationships. In response to these significant problems, and as a result of the lobbying efforts of many women's organizations and advocates for victims of violence, a myriad of programs have been developed to ameliorate the effects of violence within intimate relationships or to reduce the risk of further violence. However, surprisingly little is known about the effectiveness of such services.

Background of the Problem

Many social institutions have been charged, at one time or another, with failing to adequately protect women or to appropriately respond to the needs of abused women (Bart & Moran, 1993). Abused women's advocates have criticized police departments, the courts, the health professions, the clergy, and others for underestimating the extent of violence against women, for conceptualizing it in a way that absolved them from involvement, and for relying on procedures and practices that were insensitive to the needs of women. The Status of Women Committee of the Ontario Teachers' Federation (cited in Frankel-Howard, 1989) noted:

---

[1] Although heightened awareness of violence against women occurred at this time, Pleck (1987) pointed out that reform against such violence has occurred at other times in history. For example, from 1640 to 1680, the Puritans of Massachusetts introduced laws against wife beating. A second reform movement existed from 1874 to 1890 when efforts on behalf of battered women were undertaken in the United States of America. Pleck marks the commencement of the third "era" of reform as the early 1970s.

[2] In contrast, from 1974 through 1992, 451 men were killed by their spouses. Those 451 men constituted 6% of adult male homicide victims. The annual spousal homicide rate for wives, on average, is 13.2 per one million couples compared to 4.1 for husbands.

> A woman has few options when she makes the decision to seek help. The police may be unable or unwilling to lay charges, if called to help, and the courts may be slow and unsympathetic in granting injunctions against a husband or giving the wife possession of the matrimonial home. The traditional source of help, the clergy, are often more interested in saving the marriage. Family physicians tend to concentrate on treating the physical results of the violence. Social workers, while they may try to help and counsel a battered woman, frequently encounter the refusal of most violent husbands to participate in counselling, and their prevention of counselling for their wives. (p. 74)

As a result of mounting criticisms about prevailing responses to wife abuse, and active lobbying, laws have been passed or reformed, funding has been targeted for programs designed to address the problem, policing policies have been introduced, educational programs have been devised, screening protocols have been implemented, and service professionals, including those in health, social service, justice, and the clergy have been exposed to educational programs outlining the extent of the problem and appropriate interventions. However, do these interventions truly improve the lives of women who have experienced violence? Or, do they solely serve to express the community's condemnation of the behaviour, with little effect in individual women's lives? As Dobash and Dobash (1979) pointed out, the policies and practices underlying interventions devised to deal with individual cases of abuse have implications both for the cessation or continuation of violence in a particular relationship and for the more general acceptance or rejection of violence against women. The implications of standard practices and policies may not be self-evident and some may conflict with others. For example, an agency may condemn violence against women, and yet endorse or support the type of relationship that fosters it. An agency may promote the dominant role of husbands and the "conditions that contribute to the isolation, subordination, and dependence of wives, thereby acknowledging the husband's right to control his wife and making it physically and morally difficult for a woman to seek outside help when her husband uses physical force against her" (Dobash & Dobash, 1979, p. 179).

Ferraro and Pope (1993) made the claim that the legal and policy changes related to wife abuse that have been made only serve to "empower" the police. Such empowerment, they contend, without simultaneously empowering women can abate, rather than enhance the safety of women. Ford and Regoli (1993) pointed out that prosecution in wife abuse cases promises to prevent further violence and serves to affirm the state's intolerance of violence against women, but may not truly prevent violence and may only "represent wishful thinking, inferred from findings on police effects and popular notions that punishment deters crime" (p. 128). In relation to the health sector response, Hanvey and Kinnon (1993) maintained that many women who are victims of male violence and who seek assistance from health professionals experience "their contact...as another form of abuse" (p. 7).

Research Questions

To date, there has been little systematic examination of the effects of institutional, or societal, responses to wife abuse, particularly in relation to women's health. This study sets out to answer four questions. Do particular societal responses to victims of wife abuse serve to alleviate the adverse health consequences of wife abuse? Further, little is known of the factors, if any, that influence women's choices related to service utilization. Are there particular characteristics of a woman, her relationship, or the nature of the abuse that affect her help seeking behaviour or access to particular services? And, do these characteristics affect the health outcomes associated with the exercise of particular institutional or service responses? Finally, has the effectiveness of particular societal responses to wife abuse changed over time?

Conceptual Issues

A wide range of terms have been utilized by researchers, service providers, and policy makers to denote the abuse women experience within their intimate relationships, including *domestic violence*, *family violence*, *spousal abuse*, *intimate violence*, *wife abuse*, *wife assault*, *woman abuse*, *woman battering*, and *wife battering*. Although some may assume that these terms are synonymous and interchangeable, one's preference for a particular term has been taken as an indication of one's underlying assumptions regarding the nature of the violence, its significance, and its aetiology.

The term *wife abuse* has been rejected by some because it implies concern with women living in a legal, rather than a social state of marriage, although it does focus on the centrality of the social institution of marriage as well as gender (Dobash & Dobash, 1992). Others have rejected the term *wife assault* because it is "too narrow and legalistic" (MacLeod, Shin, Kerisit, & Kinnon, 1992) and limits attention to legal marriages. Concern about the narrowness or limitations of legal terminology has also been extended to the term *battering*. *Battering* is a particular degree of the severity of an assault and implies physical aggression alone (Walker, 1990). Others have rejected the term *woman abuse* because it fails to emphasize the social institution of marriage, which they believe to be the foundation of the problem, although it emphasizes the role of gender and avoids the assumption of *legal* marriage (Dobash & Dobash, 1992). The terms *domestic, spousal, intimate* and *family violence* have been rejected by most feminists because they tend to veil the "gendered" nature of the problem and disregard the nature of the relationship. Others argue that the problem is not gendered, that the family is the central unit of analysis, and that the terms *domestic, spousal,* or *family violence* are most appropriate because women are as violent as men in their relationships (Straus, 1993).

The preceding discussion highlights some problems associated with the denotation of the violence women experience within their intimate relationships. There are also definitional problems associated with the use of various terms. Many authors have simply failed to define their terms. Others have defined *wife abuse* as acts of damaging (actual or potential) physical violence directed toward women by their spouses. This definition is occasionally broadened by researchers to include marital rape, psychological abuse, and economic deprivation. Diana Russell, in an introduction to Martin's (1983) work, defined *wife-battery* as an extreme form of *wife-beating*. Yllö (1993) conceptualized the violence women experience as a "tactic of coercive control" (p. 53) to maintain a husband's power and included "minimization and denial, intimidation, isolation, emotional abuse, economic abuse, use of children, threats, and assertion of male privilege" (p. 54). MacLeod et al. (1992) highlighted a trend toward broadening the definition to one that is "more holistic" and that can reveal patterns or commonalities among various forms of violence and can link physical, sexual, and emotional abuse by a partner to the societal violence associated with economic, racial, and political inequities.

For the purposes of this study, the phenomenon of interest is limited to the abuse women experience within their intimate relationships with men, including marital and common law relationships, but not including dating relationships. The term *wife abuse* is used to denote this phenomenon. And, women who have been subjected to such abuse are termed *abused women* or *wives*, or *battered women* or *wives*, interchangeably. The abuse can take the form of physically aggressive acts, such as pushing, shoving, kicking, choking, or wielding a knife or gun, forced sexual activity, controlling or dominating behaviour, such as limiting a wife's contact with her family and friends, monitoring her whereabouts, acts of jealousy, or economic deprivation, emotional abuse, and threatening to cause harm.

The scope of the study is limited to the experience of women because "husband abuse" is not believed to be sufficiently similar to wife abuse to warrant its inclusion in a comprehensive and undifferentiated conceptualization that could be termed "spousal abuse." Even those researchers who report that physical assaults by women are a serious social problem acknowledge that the extant research findings are perplexing. First, early evidence, based on a nationally representative American survey, revealed that "husbands have higher rates of the most dangerous and injurious forms of violence (beating up and using a knife or gun)" (Straus, Gelles, & Steinmetz, 1980, p. 43). Further, the greater physical strength of men makes it more likely for women, rather than men to be injured when assaulted by their opposite sex partners. Cantos, Neidig, and O'Leary (1994) studied 180 couples who had been referred to a treatment program for domestic violence. In 82% of the couples, both the husband and the wife were reportedly physically aggressive, and in 65% of the couples, one or the other partner sustained an injury. Women were far more likely to incur injuries, and when they did, their husbands were more likely to have used severe acts of physical aggression. The authors concluded that a "man's slap or kick is not equivalent to a woman's as a woman is much more likely to receive injuries when subjected to this form of relationship aggression than are males" (p. 122). Stets and Straus (1990) and Brush (1993) reported that the rate for male injury-producing assaults ranged from 1.2% to 3.0%, whereas the rate for women ranged from 0.2% to 0.4%. Straus (1993) concluded that the "injury adjusted rate for assaults by men is six times greater" (p. 69) than the rate for women. Berk, Berk, Loseke, and Rauma (1983) examined the data derived from "domestic disturbances" in which police were involved. Forty-three percent of the women in the sample were reportedly injured, compared to 7% of the men. In those cases in which one, or both, of the parties was injured, women were injured 94% of the time, compared to 14% of the time for men. Most relevant to this discussion is the finding that when a man was injured, the woman's injuries were nearly three units more severe than when a man was not injured.[3] This suggests that even if women initiate the violence and injure their partners, the men retaliate with severe beatings.

Second, the violence perpetrated by women may be motivated by self-defence. Saunders (1986) surveyed battered women who sought help from shelters or a counselling agency. Approximately 40% of the women who had been physically aggressive (kicked, bit, hit with a fist, or used a knife or gun) toward their husbands reported that their violence occurred in self-defence. An additional 32% reported that they were "fighting back." Only one woman indicated that she initiated the violence. Cazenave and Zahn (1992) reviewed 83 homicide incidents involving men and women in intimate relationships in Philadelphia and Chicago, during the years 1968 through 1978. Although the offenders were evenly split among males and females, in 91% of the cases in which data were available, the initiator of physical violence was male. In analyzing the possible motives of the offenders, the authors concluded that 18 of the 41 women (44%) killed their partners in self-defence (the most common motive for women). Not one of the men killed his partner in self-defence. The most common precipitating event in homicides perpetrated by men was their partner's attempt to leave the relationship.

Finally, the violence men experience in their relationships seems to engender less fear. O'Leary and Curley (1986) studied 72 couples, of which 22 experienced abuse within the relationship, 23 were maritally discordant but not abusive, and 23 were reportedly "happily" married and not abusive. Women from the abusive couples reported greater fear of their husbands than the men's reported fear of their wives. In a probability sample of Alberta residents, the perceived consequences of being hit back by one's spouse if the respondent hit him or her varied greatly depending on the respondent's gender. Almost one-half (42.4%) of the women who reported being hit by their partners in the previous year rated their husbands' hitting as severe, whereas only 8.8% of men rated their wives' hitting as severe (Kennedy & Dutton, 1989).

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[3] Severity of injuries was measured on an 8-point scale ranging from no injuries (0) to rather severe injuries for which medical attention would normally be required (7). For example, a score of one indicated bruises, cuts, or abrasions of a superficial nature; broken bones, broken teeth, or injuries to the sense organs, such as the eyes resulted in a score of four; and internal injuries or concussions were scored five. The injuries were those noted by police officers or prosecutorial office staff, hence an underestimation of the incidence of less serious injuries may have occurred.

Summary

The effectiveness of institutional, or societal, responses to the needs of abused women has not been fully examined. In view of this knowledge gap, a study was undertaken in order to examine the effectiveness of such intervention on the health status of abused women while controlling for background factors, such as the nature, frequency, and severity of the violence and social and demographic characteristics of the women. In the following chapter, a more comprehensive literature review is provided detailing the health consequences of wife abuse, the help seeking behaviour of abused women, the determinants of that behaviour, and the institutional or societal responses designed to assist abused women.

Chapter 2

Literature Review

This literature review focuses on three central themes: the health consequences of wife abuse, the determinants of the help seeking behaviour of abused women, and finally, the services available to abused women. For the purpose of this review, we surveyed relevant descriptive and empirical literature in the disciplines of nursing, medicine, psychology, sociology, women's studies, and criminology, published between 1970 and 1994. Pertinent materials were identified by computer and manual searches, and by the ancestry approach (Cooper, 1989), were limited to published materials, and were those written in or translated into English. Computer searches were guided by the use of the keywords: wife abuse, spouse abuse, domestic violence, family violence, and battered wives and were conducted in the following databases: Medline (1966 to December, 1994), the Nursing and Allied Health Index (CINAHL) (1983 to November, 1994), Psycinfo (Psychological Abstracts) (1980 to March, 1994), Social Work Abstracts (1977 to March, 1994), Sociofile (1974 to April, 1994), the Uncover Index (1988 to December, 1994), and the Wilson Humanities and Social Sciences Index (February, 1983 to 1994).[1]

There has been a profusion of literature related to wife abuse published in recent years, most of which is descriptive or theoretical in nature, based on case studies, or non-research based. Accordingly, because of the vast quantity of materials and the broad foci of this review, it is not exhaustive in nature. However, we are confident that critical works have been considered and that a fair assessment of the current state of knowledge is provided.

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[1] Medline covers the international literature on biomedicine, including the allied health fields and humanities as they relate to medicine and health care. Information is indexed from approximately 3,600 journals. CINAHL provides coverage of English-language journal literature related to nursing and the allied health disciplines. Information from over 900 journals is included in this database. Psycinfo lists psychological and behavioural literature, including works found in cognate areas of psychology, such as social work, education, and sociology; over 1,200 journals and reports are covered. Sociofile provides access to literature in sociology and its related disciplines, both theoretical and applied. The database contains citations of journal articles cited in Sociological Abstracts and Social Planning Policy and Development. The Uncover Index is an abstracting service that provides citation information from 15,000 multidisciplinary journals, and the Wilson Humanities and Social Science Index cites literature from more than 350 English-language periodicals, including those from anthropology, history, corrections, law, planning and public administration, policy sciences, political science, psychology, and sociology.

Health Consequences of Wife Abuse

As Kelly (1988) stressed in her discussions of sexual violence, every experience of abuse is likely to have consequences for a woman. What those consequences are, and their short- or long-term implications, may not be easily predicted from the particular form of abuse a woman may experience. Different forms of abuse may have similar effects, whereas the same form may have different effects in different situations. Current and past experiences of abuse may interact and result in a compounded effect. Recent incidents may arouse memories of, and similar reactions to, previous acts of abuse. Exposure to a particular form of abuse may not be necessary, or sufficient, for associated health problems to surface. The consequences of wife abuse are not unicausal, exposure may lead to a wide range of outcomes, and the "induction" period from causal action, the incident of abuse, to the initiation of the health problem is not constant. Further, the mechanisms by which conditions in one's social environment might influence one's health status, in general, is a relatively new area of research (Berkman, 1986). Thus, the epidemiology of wife abuse is a complex matter.

Few research findings related to wife abuse and health stem from sound cohort or case-control studies. Much of what is believed to be known is based on case studies, or small, non-representative samples. Many studies are descriptive in nature with little or no attention paid to comparison groups or generalizability. Few of the studies that are designed to determine associations between exposure and outcome are longitudinal in nature. Most are cross-sectional, making the determination of temporal ordering difficult, if not impossible. However, in examining the research literature related to the health consequences of wife abuse, we can obtain an emerging profile of the health status of abused wives and the health problems associated with abuse.

General Health Consequences

Four studies were located that provide some assessment of the general health status of abused wives. Kérouac, Taggart, Lescop, and Fortin (1986) found that only 55% of the abused wives they interviewed perceived their health status to be good or excellent. In a different study, abused wives were asked to retrospectively rate their physical health at five different times: (a) during their childhood; (b) prior to their involvement with their violent partner; (c) early in their relationship, prior to the onset of violence; (d) during the abuse; and (e) following the ending of the abuse (Follingstad, Brennan, Hause, Polek, & Rutledge, 1991). There was no difference in the perceived health status of these women during their childhood and prior to their involvement with a violent partner. However, the women reported that their health deteriorated early in their relationships, prior to the onset of the violence. Childhood and life prior to the relationship were significantly healthier times than during the abuse and during the time following the abuse.

Health ratings were higher for the period following the end of the abuse than when the abuse was occurring. This same pattern of worsening health until the abuse ends was found for *emotional* health status, as well. However, those wives who experience sexual assault, in addition to physical abuse, seem to rate their health in a manner comparable to those who are free of sexual abuse (Campbell, 1989b).

Gelles and Straus (1988) reported that, in their Second National Family Violence Survey, in which an American nationally representative sample of 6,002 individuals were telephone-interviewed, 21% of the women who had experienced "severe" violence within the previous year rated their health as fair or poor, compared to 6% of the women who reportedly experienced "minor" violence, and 11% of women free of violence. Fifteen percent of the women who had been exposed to "severe" violence within the previous year reported that their health was currently much worse than what it was before the violence began within the relationship. And, 4% of the women who reported "minor" violence within the previous year rated their health as much worse, compared to 5% of women who reported they had not experienced violence, but who had reportedly initiated violence within their relationship.

On average, those women who experienced severe violence spent one and a half days in bed due to illness in the previous month, whereas victims of minor violence and women free of violence spent approximately one half of a day in bed (Gelles & Straus, 1988). Although these data suggest that women who experience "severe" violence suffer from poorer health than other women, the true magnitude of the effect may be suppressed. Gelles and Straus reported that women between the ages of 18 and 24 years are more likely to be beaten than older women. And, it is generally known that older women, who are more likely to be free of violence, are also more likely to give lower ratings of their general health. However, the confounding effect of age was not controlled in the reported descriptive statistics.

In summary, the general health of abused wives appears to be substantially poorer than that of women who are free of abuse within their intimate relationships. The following sections focus on several specific health issues encountered by abused women, including physical injuries, psychosomatic and somatic complaints, psychological health problems, alcoholism, and prescription drug use.

Physical Injury

Much of the literature addressing the health consequences of wife abuse has focused on the frequency, nature, and extent of physical injury sustained as a result of the violence. For example, Murty and Roebuck (1992) analyzed the crisis calls of 9,919 battered women and found that physical injuries ranged from minor injuries, such as superficial bruises, sprains, and scratches to moderate injuries, such as black eyes, fractured noses and limbs to severe injuries, including multiple fractures, loss of consciousness and concussions. However, it seems that not all women who are exposed to violence sustain physical injuries. Fagan, Stewart, and Hansen (1983) interviewed battered women who were clients of domestic violence projects made available throughout the United States. One-third of the women reported occasionally sustaining an injury, such as a bruise, laceration, or more serious harm, while just over one-quarter reported sustaining frequent injuries. Berk et al. (1983) examined the reports filed by investigating police officers related to "domestic disturbance" incidents and found that only 43% of the women in the sample were reported to have been physically injured.

No study was identified in which the nature of the violence was examined to determine if particular patterns of injury emerged. The only suggestion that certain forms of violence may result in more severe injury can be elicited from Campbell's (1989b) work where it was reported that battered women who were sexually assaulted within their marriages were more likely to have been seriously injured from the abuse than battered women free of sexual assault.

Violence within intimate relationships, as it is usually operationalized in research, can range from throwing something at one's partner to using a knife or gun against her, and the injuries can range from minor bruises to severe head injuries and permanent disability. However, in the absence of community-based data, derived from injury registries or other mechanisms, and the lack of standardized categorization or classification schemes for injury, it is difficult to develop a comprehensive profile or epidemiological analysis of the injuries associated with wife abuse. Further, the majority of investigations have lacked comparison groups, prohibiting the comparison of injuries incurred by abused women with those of women of similar age and circumstance who sustain injuries with aetiologic origins other than violence.

Notwithstanding the limitations of the extant research findings, the majority of physical injuries sustained by abused wives appear to be "minor" in nature (Appleton, 1980). This is not intended to imply that the injuries are insignificant or trivial. Undoubtedly, many such injuries can cause long-term pain and suffering, loss of income, loss of mobility, disfigurement, and so forth. However, they are not, for the most part, life threatening or of a nature that would require the deployment of emergency trauma services.

Gayford (1975) reported one of the earliest studies of the consequences of wife battering. He interviewed 100 battered women who had sustained deliberate, severe, and repeated physical injury; the minimal injury reported was severe bruising. In 44 cases, the bruising was associated with laceration; 39% of which were caused by sharp instruments such as razors, knives, or broken bottles. All of the women had been hit with a clenched fist and 59 were also repeatedly kicked. Weapons were used in 42 cases. Strangulation attempts were reported in 19 cases and two reported suffocation attempts. Eleven women reported burns and scalds and seven were bitten. Twenty-four women sustained fractures of the nose, teeth, or ribs, eight had other bones fractured, while four had dislocated shoulders or jaws. Other researchers have reported similar types of injury among victims of wife abuse: the majority (60% to 85%) involved bruises, cuts, or scrapes; 4% to 21% involved fractured bones and teeth; and 8% to 17% involved serious injury, such as loss of consciousness and internal injuries, including miscarriage (Cascardi, Langhinrichsen, & Vivian, 1992; Dobash & Dobash, 1979; Sullivan, Basta, Tan, & Davidson, 1992). In one of the few Canadian studies, Kérouac et al. (1986) interviewed abused wives residing in shelters in the Montreal area. They found that one-third of the women suffered bruises, lacerations, and bone fractures, mostly to the upper regions of the body.

In the absence of classification schemes for injury, particularly minor injury, it is difficult to make comparisons across studies. Only Murty and Roebuck (1992) were found to classify the injuries they studied by severity. Fifty percent of the women reported mild injuries; 35% reported moderate injuries; and 15% reported severe injuries. Unfortunately, they did not make their classification criteria explicit.

Stark et al. (1981) conducted the first, comprehensive injury epidemiology study related to violence against women.[2] They concluded that there was a pattern to the injuries sustained by abused women. For example, they reported that abused women who presented to an emergency department were more likely to have multiple injuries (more than three sites) than women who sustained injuries unrelated to abuse. Further, while women's injuries not related to abuse occurred most often to the elbow, knee, or hip areas, abused women sustained injuries that clustered around the head, neck, face, throat, chest, and abdomen. Abused women's injuries were more likely to involve abrasions or contusions, while non-abused women were more likely to sustain sprains or strains. There were no significant differences in the proportion of lacerations, fractures, or dislocations between the two groups of women.

Stark et al. (1981) asserted that, although there are no substitutes for thorough medical history taking, including medical record reviews and patient interviews, knowledge of the type and location of the injuries incurred by abused women can facilitate their identification by assisting health professionals in the development of an "index of suspicion" (p. 10). Ratner (1991), however, pointed out major concerns related to the reliability and validity of the classification system used by Stark and his colleagues to distinguish abused women from non-abused women. First, the criteria for classification were not specific and considerable discretion was left to the coders. Second, inter-rater reliability does not appear to have been established. Finally, the reliance on medical records alone, which may have been incomplete and which were confined to one facility, is a significant limitation of the study. Many of the women included in the study may have utilized additional health care services in their community, suggesting the findings were based on incomplete data.

Despite the absence of replication studies, the methodological limitations of the study, and the cautionary notes of Stark et al. (1981), their findings have been often cited as the basis for various screening protocols and educational materials designed to facilitate the identification of abused women. For example, in a literature review prepared for the Policy, Communications and Information Branch of the then Ministry of National Health and Welfare, Frankel-Howard (1989) reported that particular types of injury should arouse suspicions of wife abuse, including bleeding injuries, especially to the head and face, eye injuries, and fractured jaws. The Ontario Medical Association Committee on Wife Assault (1988) advised physicians to be suspicious of wife abuse if they were confronted with a woman with "bilateral [injuries]...typically involv[ing] the head, neck, and trunk" (p. 3). Mehta and Dandrea (1988) of the University of Florida, College of Medicine wrote that "family physicians should suspect physical abuse in patients with evidence of trauma localized to the head, face, breasts, abdomen or extremities" (p. 195). Finally, Morrison (1988), of the Emergency Department of the Royal Victoria Hospital in Montreal, went so far as to advise that abused wives typically present to emergency rooms after 5:00 PM with "multiple and bilateral injuries involving the head, neck, chest, breasts, back, and abdomen.... [Their pain] is usually inappropriate for the injury... [and] abrasions and contusions...are more common [than in non-abused women]" (p. 523).

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[2] Also reported in Stark, Flitcraft, and Frazier (1979).

In an attempt to verify some of the commonly held beliefs about the nature of abused wives' injuries, Ratner (1991) interviewed a community-based random sample of women in Edmonton. She found that abused wives were at no greater risk of fractures, head injuries, or ruptured ear drums than women free of abuse. However, abused wives were more likely to report sustaining large bruises. Further, the anatomic location of the bruises differed for abused wives. Women who sustained injuries unrelated to abuse usually reported bruises occurring to the extremities, whereas abused wives often incurred bruises to the chest, neck, and face. Abused wives were also more likely to report sprains or strains and lacerations that required suturing than women free of abuse. Ratner (1995) attempted to determine whether the nature and extent of injury sustained, along with other variables, such as the presence of headache and backache, alcoholism, psychiatric morbidity, prescription drug use, health service utilization, and personal characteristics of an abused wife or her male partner could predict exposure to wife abuse. That is, could a logistic regression model, which included injuries, serve to correctly distinguish abused wives from non-abused wives? The final model, with sufficient evidence of goodness-of-fit, identified seven significant markers, including the age of the woman, the number of children residing with her, the occurrence of a laceration, the employment status of her partner, prior contact with a psychiatrist, the presence of psychiatric morbidity, and the status of the marriage.

Psychosomatic and Somatic Consequences

In addition to the direct physical injuries that can be incurred, abused wives have been found to manifest somatic or psychosomatic problems associated with wife abuse. Kérouac et al. (1986) reported that 21% of the abused wives they interviewed reported problems with insomnia, fatigue, and "disturbing physical sensations." Other researchers have found that abused wives frequently experience persistent headaches, back and limb problems, and stomach and gastrointestinal problems (Follingstad, Brennan et al., 1991). Shields and Hanneke (1983) found that the more severe the violence, the more likely were psychosomatic reactions, including headaches, insomnia, poor appetite, rapid and significant weight gain or loss, intestinal problems, high blood pressure, menstrual problems, skin disorders, and allergies.

How do these rates of somatic complaints compare with the general population? Chenard, Cadrin, and Loiselle (1991) compared the health of battered women in the years following a stay at a women's shelter to that of a representative sample of Quebec women. Battered women were found to have significantly more headaches, arthritis, backaches, digestive problems and allergies, which the authors concluded to be long-term consequences of abuse. In a comparison of a community-based random sample of abused wives and wives free of abuse, physically abused wives and wives who experienced severe psychological abuse were found to have more general somatic complaints (Ratner, 1991). Further, physically abused wives reported more frequent headaches and backaches, greater intensity of backache, and more times in which their activities were limited because of headaches than wives free of abuse. Severely psychologically abused wives also reported more frequent backaches than wives free of abuse (Ratner, 1991).

Cascardi et al. (1992) compared the health problems of battered wives, wives whose marriages were discordant but not violent, and "maritally satisfied" wives who were free of discord and violence in their marriages (matched according to age, education, years married, and income). Although not statistically significant (potentially due to a lack of power), 42% of the battered wives described themselves as currently ill, compared to 35% of the wives with discordant marriages, and 29% of the control subjects. The four primary health problems were: chronic pain, psychological difficulties (fainting, dizziness, and anxiety), gastrointestinal and bladder problems, and gynaecologic problems.

Psychological Consequences

There has been a great deal written about the negative psychological consequences of wife abuse. Descriptive studies have revealed that a large number of abused women suffer from depression, anxiety, and low self-esteem, and many attempt suicide. For example, Cascardi et al. (1992) administered the Beck Depression Inventory (Beck, 1978) to battered wives and found that almost 15% scored values indicating moderate levels of clinical depression. Follingstad, Brennan et al. (1991) reported that almost 77% of the battered wives they interviewed reported symptoms of depression and 75% reported anxiety. Similarly, Sato and Heiby (1992) administered a series of tests to women who had been battered during a one-year period, and found that almost one half (47%) exhibited clinical levels of depression. Finally, of the 100 battered wives Gayford (1975) interviewed, 50 had made suicide attempts or gestures: 34 tried poisoning themselves, 7 tried self-mutilation, and 9 tried other methods.

Several comparative studies have provided evidence that the mental health of abused wives, who have sought the services of shelters for battered women, is poorer than that of women free of violence. General psychiatric morbidity has been found to occur more frequently among abused wives (Jaffe, Wolfe, Wilson, & Zak, 1986): 46% of women from violent relationships have been found to exhibit psychiatric morbidity compared with 9% of women free of violence (Chénard, Cadrin, & Loiselle cited in Canadian Panel on Violence Against Women, 1993). Such morbidity is most often manifested as anxiety (Jaffe et al., 1986; Kérouac et al., 1986; Trimpey, 1989), depression (Jaffe et al., 1986; Kérouac et al., 1986), and poor self-esteem (Aguilar & Nightingale, 1994). Chenard et al. (1991) found that 42% of battered women had problems with severe anxiety and irritability, compared with 7% of non-abused women. They reported that 15% of the battered women they surveyed were depressed, compared to 4% of non-abused women. Mitchell and Hodson (1983) reported that battered women scored average depression scores on the Brief Symptom Inventory (Derogatis, 1975, 1977) that were over two standard deviations above the norm for women, generally, and close to the average score of psychiatric outpatients. These women scored lower self-esteem scores than those reported for a sample of community residents. Additionally, the researchers found that depression and poor self-esteem were correlated with the number of times the women reported having been battered. Finally, Trimpey (1989) studied members of a battered women's support group and found that 76% scored self-esteem scores that were classified as low or very low.

All of the comparative studies mentioned in the previous paragraph have a significant element in common in that all of the battered women were residing in shelters at the time of data collection. However, women residing in shelters may have the most serious problems, are likely to be relatively poor, with few social supports (all problems associated with poor mental health), and may not be representative of all battered women. In contrast, Ratner (1991, 1993) studied a community-based random sample of married women and found that battered wives had more anxiety and insomnia, social dysfunction, and depression than women free of abuse. Further, severely psychologically abused wives were also found to report higher levels of anxiety and insomnia. Bergman and Brismar (1991) compared battered women over a 15-year period (10 years before to 5 years after the battering) to women who were free of violence in their relationships and who were matched for age and geographic location. Twenty percent of the battered women had at least one admission to a hospital as a result of a suicide attempt, compared to 2% of the control group. There were vast differences in the mental health status of the women: only one of the 117 control subjects was admitted to the hospital for psychiatric care, whereas 59% of the battered women required inpatient psychiatric care. Sixteen percent of the battered women received psychiatric care for depression, 9% for psychoses, 23% for alcoholism, and 9% for drug addiction.

Finally, Gelles and Harrop (1989) analyzed data derived from the Second National Family Violence Survey (Gelles & Straus, 1988), which consisted of 3,002 randomly selected women, 18 years of age or older, who had lived with a male partner within the previous year. Severity of violence was found to be associated with psychological distress. Thirty-eight percent of women who experienced "severe" violence reported feeling bothered by feelings of sadness or depression fairly or very often, compared to 9% of women free of violence. Twenty-one percent of severely battered wives reported feeling very bad or worthless fairly or very often, compared to 3% of women free of violence. Finally, approximately 5% of battered wives and 0.3% of non-battered wives thought about taking their own lives fairly or very often. Further, Gelles and Harrop reported that severe violence is associated with moderate and severe forms of psychological distress, once marital conflict, family income, age, and the physical health status of the wife are controlled.

In examining other works related to the psychological consequences of wife abuse, we find that some of the evidence is contradictory. It seems that a fully comprehensive account of the mental health status of battered wives is complex, with differential effects and numerous variables likely coming into play. For example, Walker's (1983) study of a convenience sample of 403 self-identified battered women provides a confusing picture of the mental health status of battered women. First, the battered women's self-esteem, as measured by a semantic differential scale, was higher than anticipated. The women perceived themselves to be stronger, more independent, and more sensitive than other women. Yet, on the other hand, these battered women were at high risk for depression, as measured by the CES-D scale (Radloff, 1977). Women who had terminated their relationships were more likely to be depressed than those whose relationships persisted.

It is likely that the effect of abuse on a woman's psychology depends on the severity of the abuse experienced. Shields and Hanneke (1983) interviewed wives of violent men and concluded that their reactions were related to its severity. That is, as the severity of the abuse increased, the women' self-esteem diminished and their likelihood of developing depression increased. If marital rape was involved, the reactions were even more severe. Campbell (1989b) also found evidence that the nature of the violence, particularly the occurrence of marital rape could explain the noted differences in women's reactions. She reported that battered women who also experienced sexual assault within their relationships scored lower on the Tennessee Self-Concept Scale (Fitts, 1972) and its Physical Self subscale, compared to battered women free of sexual assault. She interpreted this result to mean that battered women who also experienced sexual abuse had poor self-esteem and disturbed body image. Further, Campbell suggested that, in light of her previous research (Campbell, 1989a), in which no difference was found between the body image of battered women and women in problematic but non-violent relationships, disturbed body image is specific to rape, rather than a result of physical aggression, *per se*.

Some have suggested that, in the absence of longitudinal data, the temporal ordering of psychological health problems and wife abuse cannot be determined. That is, does battering primarily occur to women who have psychological disturbances or are those disturbances a consequence of an abusive relationship? Stark et al. (1979) reviewed the medical records of women who used an emergency room service in a large American hospital. They concluded that psychological disturbance quickly follows exposure to abuse. Twenty-six percent of battered wives had recorded suicide attempts, compared to 3% of women who utilized the service for reasons other than battering. Thirty-seven percent of the battered women utilized the psychiatric emergency service, 26% had utilized a community mental health centre, and 15% had been admitted to a state mental hospital, compared to 7%, 4%, and 1% of the non-battered women, respectively. In the majority of cases, the authors claimed that the mental health problems emerged *following* the first recorded incident suggestive of abuse.

Many health professionals, psychologists in particular, have come to consider the psychological consequences of wife abuse a constellation of symptoms or a syndrome, namely the battered woman syndrome. Several consider the syndrome to be a part of a broader disorder, namely post-traumatic stress disorder (PTSD) (McCann & Pearlman, 1990; Walker, 1984, 1988, 1993a, 1993b). Indeed, the battered woman syndrome appears in the ninth edition of the World Health Organization's (1989) *International Classification of Diseases*. And, it is considered a subcategory of PTSD in the revised edition of the American Psychiatric Association's (1987) *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R).

Walker (1984, 1988, 1993a, 1993b) is the most well known and published proponent of the battered woman syndrome, which she describes as a constellation of usually transient psychological consequences that result from living in an abusive relationship. She argues that the syndrome is similar to, or a form of, PTSD and can be considered a subcategory of PTSD, as is the rape trauma syndrome, the combat veteran's syndrome, and the battered child syndrome. She believes that the syndrome is a collection of thoughts, feelings, and actions that logically follow a frightening experience that one expects could be repeated.

Houskamp and Foy (1991) studied PTSD in battered wives who had contact with domestic violence clinics in Los Angeles. On one measure, the Symptom Checklist (Foy, Sipprelle, Rueger, & Carroll, 1984), 43% of the women were rated as having diagnosable PTSD. On a second measure, the Structured Clinical Interview (Spitzer & Williams, 1985), 45% of the battered women were rated as having diagnosable PTSD. Further, the intensity of the violence and the extent of the violence were found to be associated with the severity of PTSD symptoms. Those women who were considered to have been exposed to life-threatening violence within their relationships were more likely to be classified with full PTSD. Also, women whose violent relationships were of relatively longer duration were more likely to have PTSD diagnostic status.

Woods and Campbell (1993) reviewed the literature related to PTSD, the battered woman syndrome, and post-traumatic stress response in battered women and noted that much of the current literature is anecdotal or based on case studies; there is a paucity of empirical research. They concluded that the most common responses to wife abuse, namely depression, poor self-esteem, anxiety, and self-blame are not the "hallmark symptoms" of PTSD. However, recently published studies seem to confirm that some, but not all, abused women are at risk of developing PTSD (Astin, Lawrence, & Foy, 1993; Saunders, 1994).

Alcoholism

The findings related to the incidence of alcoholism among battered women are equivocal. Although some have suggested that abused wives are more likely to be alcohol dependent, Appleton (1980) found that, in women who were admitted to an emergency room, 63% of the women who admitted having been struck by their partner drank "occasionally," compared to 60% of non-abused women. Fourteen percent of each group admitted to drinking regularly. Bullock and McFarlane (1989) compared pregnant, battered women to pregnant women who denied exposure to wife abuse, all of whom were patients in public or private hospitals. Battered women reported less alcohol use during their pregnancy than did non-battered women. Finally, Van Hasselt, Morrison, and Bellack (1985) compared alcohol use among wives who were physically abused, wives who had discordant, but non-violent marriages, and "satisfactorily married" wives. No differences were found across the groups based on the Michigan Alcoholism Screen Test (Selzer, 1971), the Quantity-Frequency Index (Jessor, Graves, Hansen, & Jessor, 1968), which measures average consumption of alcohol over a one-month period, and the Impairment Index (Shelton, Hollister, & Gocka, 1969), a measure of the extent of behaviour problems stemming from alcohol use.

In contrast to those researchers who found no association between alcoholism and the experience of abuse, Ratner (1991, 1993) found that, in a community-based randomly selected sample, physically abused wives had 8.1 times the risk of alcohol dependence, and psychologically abused wives had 5.3 times the risk, compared to wives free of abuse. Of the women free of abuse, 2% were found to be alcohol-dependent, compared to 11% of the psychologically abused wives and 16% of the physically abused wives.

Shields and Hanneke (1983) conducted in-depth interviews with women who had been physically assaulted by their husbands, women who had been raped and physically assaulted by their husbands, and women who were free of violence but whose husbands were involved in violence outside of the family. All of the women had been referred from various social agencies, including self-help groups for alcoholics, the police, a "halfway" house, a private therapist, shelters, retraining programs, educational institutions, and a lawyer. Analysis of the three groups revealed that the "non-victimized" group was less likely to report using alcohol for depression than the women who were assaulted. The raped and battered group of women were most likely to use alcohol for depression.

In examining the effect of violence on alcohol use, Shields and Hanneke (1983) limited their analysis to the women who were physically assaulted. They reported that the severity of the violence was associated with an increased likelihood of using alcohol for depression. In examining partial correlations, when the severity of the violence was controlled, the relationship between marital rape and using alcohol for depression remained statistically significant at approximately the same level. However, the correlation between violence severity and alcohol use dropped to .01 when rape was controlled. The authors concluded that in combination, the data suggest that marital rape has a separate direct effect on the use of alcohol for depression. That is, marital rape was considered to be an intervening variable, in the sense that increasingly severe violence can lead to marital rape, which tends to result in a greater likelihood of alcohol use. The frequency of rape was not relevant, that is, women who were raped many times or "all the time" were no more likely to use alcohol than women who were raped once or twice.

In the studies described, the temporal ordering of alcoholism and victimization can only be assumed. In one case, however, some evidence of the temporal order is provided. Stark et al. (1979) found, based on medical record analysis, that those women who were categorized as battered were more likely to have abused alcohol

(7%) than those women who were not considered to have been battered (1%). Those battered women were noted to have a problem with alcohol *prior* to their first recorded assault. However, following the first incident suggestive of abuse, a greater number of battered women were also noted to abuse alcohol (16%). The authors concluded that in the vast majority of cases, "problems emerged only *after* the first incident suggestive of abuse" (p. 468).

Prescription Drug Use

Research evidence suggests that battered women are more likely to be prescribed medication than women free of abuse. Although Dobash and Dobash (1979) did not specifically ask about prescribed medication, 40% of the abused women in their study, who sought assistance from a physician, spontaneously mentioned that they had received drugs. A study of battered wives in a shelter in Nova Scotia revealed that almost 60% of the women who sought medical care following an incident of wife abuse received a prescription drug, usually a tranquillizer (Tearmann Society for Battered Women, 1988).

Cascardi et al. (1992) compared three small groups of women: battered wives, wives with discordant and non-violent marriages, and wives free of discord and violence. They found no difference across the groups for current medication use. On the other hand, Ratner (1991) found that in women 18 to 35 years of age, physically abused wives were more likely to be taking prescribed medications of any kind than women free of abuse. Whereas 45% of the non-abused women were not taking any prescribed medications, only 27% of the physically abused women were not taking prescribed medications. And, 21% of the physically abused women were on more than three prescribed medications within the month prior to the interview, compared to 6% of the non-abused women. No difference was found in the use of non-prescription pain killers, prescription pain killers, antibiotics, anti-depressants, tranquillizers, or muscle relaxants. However, abused women aged 18 to 35 years (12%) were more likely to report using sleeping pills within the month prior to the interview that non-abused women (3%) of the same age; and they were more likely to have reported taking anti-inflammatories (9%) than non-abused women (<1%). Stark et al. (1979) found, upon reviewing the medical records of women who utilized an emergency room service, a different pattern of prescription drug use. Battered women were more likely to be prescribed minor tranquillizers or analgesics than non-battered women who sought health care for a variety of reasons.

Summary

In summary, although one can pinpoint limitations, gaps, and inconsistencies in the extant research related to the health consequences of wife abuse, there is a large body of evidence suggestive of the ill effects of abuse, whether it is manifested psychologically or physically. In general, abused wives rate their own health poorer than women free of abuse and poorer than it was at times when they were free of abuse. Such women sustain a wide range of physical injuries, ranging from minor contusions to very serious head injuries, gunshot wounds and stabbings. They are likely to experience depression, anxiety, poor self-esteem, and may be victims of post-traumatic stress disorder or battered woman syndrome. Many abuse alcohol as a means of dealing with their problems and many are prescribed medications, such as anti-anxiety drugs, anti-depressants, and analgesics. This account inaccurately and unintentionally suggests that women who experience violence within their relationships are necessary victims of that violence, who do nothing to alter their situations, and who simply decompensate. Clearly, this is not the case, as the next sections reveal. Women take many actions in their attempts to eliminate the violence in their lives. And, many options are open to them. The following sections describe several potential determinants of abused wives' help seeking behaviour, several of the services that are potentially available to them, their utilization patterns, and some of the limitations associated with various services.

Determinants of the Help Seeking Behaviour of Abused Women

What determines whether a battered woman will seek help? And, if she does seek help, what determines the particular sources of help she exercises? Similarly, what determines whether one or more societal or institutional responses come into play in particular cases of wife abuse? Although these questions have not been directly addressed in the identified, published literature, clues to the determinants of abused women's help seeking behaviour can be elicited from assorted studies.

The Nature of the Abuse

Research evidence points to three characteristics of the abuse women may experience that act as determinants of help seeking behaviour: the severity of the abuse, the occurrence of marital rape, and the use of weapons. Gelles and Straus (1988) reported that the key factor that determined whether a woman would take action and seek help was the severity of the physical abuse she experienced. Women who were punched, kicked, bitten, choked, hit with an object, beaten, or threatened with weapons responded more to the most recent attack and attempted to get more help from more different sources than women who were victims of less severe forms of violence. Dobash and Dobash (1979) theorized that most women do not tell anyone when their husbands first begin to slap, shove, and hit them. The initial failure to take action, they speculated, is related to the fact that initially most battered women do not consider themselves to have a real or continuing problem and conclude that no assistance is necessary. However, as the violence escalates in frequency and severity, the problem can no longer be ignored. Shields and Hanneke (1983) also found that the severity of violence influenced whether a woman sought help. The more severe the violence, the more likely a battered woman was to have had her partner arrested and to have sought help from family, friends, or professionals.

Follingstad, Laughlin, Polek, Rutledge, and Hause (1991) used cluster analysis to identify five typologies of battered women. Based on interview data of women with histories of physical abuse, 34 of 50 variables were found to discriminate five groups. The findings provide some evidence that the nature or severity of the violence may determine help seeking behaviours. For example, the first grouping of women experienced the greatest frequency and severity of violence and used many resources to deal with the abuse, such as shelters and social agencies. The second grouping experienced the lowest frequency and severity of violence and were not likely to have used any resources. The third group of women reported abuse at a frequency between the first and second groups, yet reported the most severe injuries and reported more injuries requiring medical attention. These women perceived themselves to be emotionally unhealthy and all had used some type of resource. The fourth group experienced violence with the same frequency as the third group, however the violence was "moderate" in severity and had not increased over time. These women were also likely to utilize resources, however the services they sought were not directly connected with abuse. The final group, small in number, had a high frequency of reported abuse, but the abuse had decreased over time. The severity was rated low and injuries had seldom occurred. These women reported staying in their relationships because they had nowhere to go and they reported a very unhealthy emotional state during the abuse. As a group they were more likely than the women in the other clusters to use a shelter and 75% had used some type of agency.

Bowker and Maurer (1987) tested the hypothesis that severity of violence was associated with the likelihood of seeking help from health professionals by examining the responses of an American national volunteer sample of battered women, solicited through a popular magazine. The frequency and severity of violence within the relationship were weakly correlated with utilization of health services, as was the occurrence of marital rape. Similarly, Reidy and Von Korff (1991), in the only study identified that specifically explored whether the severity of abuse is associated with help seeking behaviour, concluded that severity was not associated with the time lapsed in seeking help from an agency, such as a shelter or support group. Although the study was limited in that all the subjects eventually sought help, even those who experienced the most severe forms of abuse (being threatened with a knife or gun or being shot, stabbed, or hit with an object) frequently delayed seeking help for more than a year. Over all, for more than one-third of the abused women, the interval from the most severe incident of physical abuse to their seeking help exceeded one year.

Other researchers have found that marital rape is a determinant of help seeking behaviour. Bowker (1983) conducted in-depth interviews with a volunteer sample of battered women who had been free of violence for at least a year; 23% of the women had also experienced marital rape. In comparison to wives who had not been raped, he found that raped wives were more likely to seek help from family members, in-laws, neighbours, the police, social service agencies, shelters, the clergy, lawyers, and district attorneys. Similarly, Frieze (1983) found, in a sample of battered wives who had been solicited from a variety of sources, that marital rape was associated with help seeking behaviour. Women who had been raped were more likely to seek help from friends, family members, clerics, counsellors, the police and the courts than women who had experienced physical violence, but not rape. Ninety-four percent of wives who were raped sought psychological help, 62% called the police and 59% pressed legal charges. In contrast, 83% of battered wives who were not raped sought psychological help, 45% called the police, and 33% pressed legal charges. Finally, Shields and Hanneke (1983) reported that women who had experienced marital rape were more likely to have had their partners arrested than women who were beaten but not raped.

The use of weapons within violent relationships may be a determinant of some help seeking behaviour, particularly that of securing police involvement. Johnson (1988) found that, although injuries sustained by wife assault victims were not predictive of police intervention, the presence of weapons increased the likelihood of police involvement. Sixty-four percent of assaults involving weapons were reported to the police, whereas 39% of assaults that did not involve weapons were reported.

Abuse During Pregnancy

Several researchers have reported that abuse often occurs during pregnancy and that pregnant women are at greater risk of abuse than other women. Although an extensive examination of the literature related to battering during pregnancy is beyond the scope of this investigation, it is relevant to consider whether this phenomenon is an important predictor of help seeking behaviour. It is possible that women who are battered during pregnancy are more likely to seek outside help than those who do not have a pregnancy at stake.

Hillard (1985) conducted interviews with women seen in an obstetrics clinic for prenatal care. Approximately 4% of the women reported that abuse was occurring during their current pregnancy. Helton, McFarlane, and Anderson (1987) studied a random sample of pregnant women from public and private clinics and discovered that 8% reported that battering occurred during their current pregnancy and 29% reported that the abuse had increased following knowledge of the pregnancy. This finding is further supported by the work of Campbell, Poland, Waller, and Ager (1992) who found, in a convenience sample of postpartum women, that 7% were assaulted by their male partner during their pregnancy and about one-third of those women reported that the violence increased during the pregnancy.

Gelles (1988) analyzed the data collected in the Second National Family Violence Survey, which consisted of a probability sample of 6,002 households drawn by random digit dialling (Gelles & Straus, 1988). He concluded that women who were pregnant were at greater risk of wife battery than women who were not pregnant at the time of the interviews, although chi-square analysis did not reveal statistically significant differences among pregnant and non-pregnant couples. Suggesting that the lack of statistical significance occurred as a result of minimal power (that is, the occurrence of both violence and pregnancy among the couples surveyed was infrequent and hence resulted in small numbers for analysis), Gelles concluded that pregnant women's risk of "minor violence" was 28.3% greater than that of non-pregnant women and their risk of severe violence was 60.6% greater. Pregnant women reported higher rates of violence and men with pregnant wives reported being more violent toward their wives than did men whose wives were not pregnant. Further, Gelles reported that the violence tended to occur later in the pregnancy. The rate of violence (any act on the physical aggression subscale of the

Conflict Tactics Scales (Straus, 1979)) during the first four months of pregnancy was 154 per 1,000 couples, compared to a rate of 170 per 1,000 couples in the fifth through ninth months of pregnancy.

However, in further examining the relationship between pregnancy and abuse, Gelles (1988) demonstrated that the relationship was spurious in nature. That is, violence occurs most often in women 30 years of age or younger, as does pregnancy. When age was controlled, the large differences in rates of violence reported by pregnant women and non-pregnant women were greatly reduced or disappeared. In discussing these findings, Gelles suggested three reasons why investigators may find an association between pregnancy and abuse: (a) they do not control for age or employ control groups of non-pregnant women; (b) they are subject to reporting bias; (that is, pregnant women, outraged that their pregnancies are threatened, may be more likely to report their victimization because they have greater cause to recall it and to respond to study requests); and (c) the nature of the attacks may change while a woman is pregnant. It is the third reason that is most relevant to this study. As Gelles discussed, it is possible that the frequency or severity of violence increases during a woman's pregnancy and, hence, may influence her help seeking behaviour.

The research findings related to violence during pregnancy and women's help seeking behaviour are perplexing. Campbell et al. (1992) reported that women who were assaulted during their pregnancies were less likely to have received help from their families and had fewer people to go to for help during their pregnancies than pregnant women free of violence. Fagan et al. (1983) reported that in a convenience sample of battered women, 44% reported that abuse had occurred during a pregnancy. Of those who were abused during a pregnancy, 18% recounted miscarriages reportedly due to abuse. Although no explanation was offered, they also reported that there was a "slight tendency for calls to the police to be associated with a *lower* [italics added] incidence of abuse during pregnancy" (p. 58). They suspected that calls to the police were more likely to be made when the woman was not pregnant and were fairly infrequent during pregnancy.

Although abuse during pregnancy may dissuade a woman from seeking police intervention, such abuse may lead to greater utilization of health services. Amaro, Fried, Cabral, and Zuckerman (1990) studied the violence experienced by 1,243 pregnant women. Seven percent of the women reported physical or sexual violence during pregnancy. Thirty-six percent of the victims saw a physician for at least one of the violent incidents, and 10% were hospitalized, at least overnight, as a result of one of the violent occurrences. Bowker and Maurer (1987) reported that 48% of the battered wives they surveyed were assaulted while they were pregnant and 7% of them suffered miscarriages as a result of the beatings. They further reported that suffering a miscarriage as a result of a beating was one of the strongest predictors of health service utilization.

Age

Age as a possible determinant of the help seeking behaviour of battered women has not been specifically examined. Indeed, only one study was identified which provides some evidence related to this potential causal factor. In examining the caseload information of shelters in Canada, MacDonald and Touchette (1993) reported that women aged 25-34 years constituted 40% of the residents on one particular day in 1992. Women 65 years of age and older were the smallest group (1%). Based on 1992 post-censal population estimates, the authors determined that women between the ages of 25 and 34, in all regions of Canada, were most likely to utilize a shelter (25.4 per 100,000 females 15 years and older). In comparison, the rate of 35-44 year old women residing in shelters was lower: 14.8 per 100,000 females. And, the rates continued to diminish as the age of women increased (45-54 years: 7.3 per 100,000; 55-64 years: 4.1 per 100,000; 65+ years: 0.8 per 100,000). This finding might simply be reflective of the fact that younger women are more likely to be abused (Brinkerhoff & Lupri, 1988; Gelles & Straus, 1988; Kennedy & Dutton, 1987, 1989; Ratner, 1991, 1993). However, it is possible that of those women who are abused, younger women are more likely to seek the help of shelters.

Health Status

Few investigators have questioned whether the health status or specific health problems of battered women are related to their help seeking behaviour. The findings related to this possible determinant are scant and inconclusive. For example, Gelles and Straus (1988) reported that battered women whose health was poor did less in their attempts to seek help than women who had better health. They concluded that poor health can have a demoralizing effect and saps one's ability to deal with serious problems effectively. Yet, they also reported that abused women who were stressed or depressed undertook more strategies to end the violence and made more use of various sources of help. Johnson (1988), in reviewing the data collected in the 1982 Canadian Urban Victimization Survey, found that injury to the wife abuse victim did not increase the likelihood that the abuse would be reported to the police. In contrast, in a relatively complex statistical analysis, Berk, Newton, and Berk (1986) found that if a woman is injured in an abusive incident, she is 1.5 times more likely to use a shelter.

Socio-economic Status

Advocates for battered women are frequently asked the question, "Why do battered women stay in violent relationships?" In answer to this question, many have argued that the germane question is, "What constrains women to continue in violent relationships and fail to seek help?" The Canadian Panel on Violence Against Women (1993) argued that financial concerns bear on a woman's decision to leave a violent relationship. "She may feel guilty about leaving a family in a difficult situation, and she may be unable to scrape together enough money to get herself and/or her children to an alternative living situation" (Canadian Panel on Violence Against Women, 1993, p. 72).

In examining the research literature related to socio-economic status and help seeking behaviour among battered women, a confused and contradictory profile emerges. Johnson (1988) reported that the findings from the 1982 Canadian Urban

Victimization Survey revealed that lower income women were most likely to call the police as a result of wife battery. Although based on small samples, estimates indicated that reporting rates were 44% for victims with household incomes under $9,000; 53% for those in the $9,000 to $20,000 range; and 26% for victims reporting household incomes over $20,000. Gelles and Straus (1988), however, concluded that social factors play little or no role in determining whether battered women solicit help. For instance, in their findings, better educated women reacted about the same as those with less education and family income made no difference.

Family or combined income may not be the relevant determinant, or a valid indicator of a battered woman's financial independence, particularly when battered women frequently have no access to the family's finances. A better measure may be a woman's employment status. Appleton (1980) found that 16 of 30 battered wives who had been seen in an emergency room because of direct sequelae of battery had sought other agency help in the past. Of these 16 women, 13 were employed at least part-time outside the home suggesting that employment status is a determinant of help seeking behaviour. However, in an analysis conducted by Berk et al. (1986), battered wives who were employed outside the home were less likely to use a shelter than women who were not employed. This is consistent with Pagelow's (1981) hypothesis that unemployed women (or employed women with lower incomes) seek help more readily than better employed women because they have less to lose. That is, they do not face the possibility of giving up their jobs. Pagelow reported that many women who were interviewed at shelters were forced to terminate their employment when they left their homes because they feared appearing at their workplaces knowing their husbands could find them there.

Intuitively, one would expect a differential effect in help seeking behaviour and socio-economic status, depending on the type of help offered. For example, employed women may be in a better position to seek intervention and may, at the same time, not require emergency shelter. Clearly, the literature related to these issues is sparse and further research is warranted.

Geography

The geographical limitations of living in rural communities often have been cited as additional barriers or impediments for battered women. With fewer services available to them and difficulty in gaining access to available services, battered women living in rural areas are considered "doubly isolated" (MacLeod, 1987). In addition to the geographic isolation, some have suggested that the nature of small communities also serves to inhibit battered women's attempts to seek help. The Canadian Panel on Violence Against Women (1993) wrote:

> The ingredients for a conspiracy of silence are omnipresent in rural communities. Myths about the privacy and sanctity of family life abound. If anything is amiss, close-knit family networks and a high degree of community interdependency close ranks to deny it. Entrenched networks that confer power on high-profile community leaders who may themselves be abusers, or be friends or business acquaintances of an abuser, circumscribe

> community action and isolate abused women from other community members and resources. (p. 71)

Research findings have supported some of the Panel's claims. For example, a study conducted in Manitoba demonstrated that many people simply do not believe that wife assault occurs in rural communities (Schwanke cited in Milne, 1992). And, an Ontario study uncovered that in rural communities victims of wife abuse were blamed for their own victimization (McGee cited in Milne, 1992). However, Gelles and Straus (1988) reported that the size of the town or city in which a battered woman lived was not associated with whether she sought help from various sources, including informal support (relatives, friends, and neighbours), human services (psychotherapists, family therapists, physicians, nurses, and the clergy) and legal services (lawyers, police, and district attorneys). In contrast, MacDonald and Touchette (1993) uncovered regional differences in the rate at which women aged 15 years and older utilized shelters on a particular day in 1992 in Canada. For example, the rate for women of all ages was 10.7 per 100,000 in British Columbia, compared to 25.0 per 100,000 in the Territories. Considerable variance in the utilization rate is apparent from province to province, however no pattern is evident: 17.8 per 100,000 in the Atlantic provinces; 12.3 per 100,000 in Québec; 11.4 per 100,000 in the Prairies.

Summary

The research related to the determinants of the help seeking behaviour exhibited by abused women is sparse, fragmented, and contradictory. Although there is some evidence that the nature of the abuse to which a woman is exposed is associated with her help seeking, including the frequency and severity of the abuse, the evidence concerning other determinants, such as pregnancy, age, health status, socio-economic status, and geographical location is too limited to draw conclusions. Clearly, more research is required to arrive at a better understanding of the factors that may influence whether an abused woman seeks help and, more specifically, the factors that determine the particular sources of help exercised.

The Services Available to Abused Women

Where can a woman who has been abused within an intimate relationship obtain help? How effective are such responses? There is a vast literature related to the provision of services for battered women. However, surprisingly little is known of the effectiveness of those various interventions. Few evaluation studies, if conducted, have been published. And, when some indication of effectiveness can be gleaned from the published literature, outcome measures are often poorly or inadequately defined, or rely solely on subjective measures, such as personal reports of perceived effectiveness or satisfaction. In the following section, literature related to the help provided to battered women by informal sources, shelters, social work and counselling sources, the police, the courts, the clergy, and health professionals is reviewed.

Informal Sources of Help

When women are exposed to violence within their marital relationships, they can turn to a variety of sources for help, including that of family members, friends, the "helping" professions, such as nurses, physicians, counsellors, and clergy, and that provided by the criminal justice system, such as the police and lawyers. Gelles and Straus (1988) and Dobash, Dobash, and Cavanagh (1985) reported that battered women are most likely to turn to relatives, friends, and neighbours for help. The next most likely source of help is human-service professionals and agencies, including psychotherapists, family therapists, physicians, nurses, and the clergy. Least likely to be used are legal resources, such as lawyers, police, and district attorneys.

Appleton (1980) surveyed battered wives in an emergency department immediately following a battering incident. Sixty-three percent of the women intended to seek help from friends within the next 24 hours and 27% intended to contact relatives. In one of the earliest large scale Canadian investigations, conducted by the Ministry of the Solicitor General and Statistics Canada, wife abuse victims indicated that they frequently utilized informal sources of support (Johnson, 1988). Thirty-seven percent turned to neighbours or friends and 20% sought help from family members.

Dobash and Dobash (1979) also found that battered women were more likely to report the violence in their relationships to friends or neighbours than to the police, ministers, physicians or social workers. Forty-three percent of the women reported a least one contact with a neighbour as a result of the violence and 49% reported contact with friends. Further, they found that battered women seek help from third parties for a variety of reasons, including the need for physical protection, emotional support, advice, medical treatment, referral to formal agencies, peace, security, and refuge. However, the need for a sympathetic listener and accommodation outnumbered all other requests by approximately three to one. The women interviewed reported that relatives, friends, and friendly neighbours (usually women) were almost all willing to offer emotional support. Additionally, in the rare instance, friends or relatives attempted to confront the abusive partner in order to stop further incidents of violence or to punish him.

Although informal sources of support are likely to be a woman's first and perhaps only contact, the effectiveness of such support appears to be limited. Dobash and Dobash (1979) found that, although some neighbours were sympathetic when approached by battered women, the majority were not perceived to be sympathetic. Neighbours were defined as "negative, unsupportive, and distant" by the battered women interviewed. Although many neighbours may see an attack or hear a battered woman's cries for help, they infrequently call the police (Dobash & Dobash, 1979) or offer respite (Paquin, 1994).

Others have also noted failings in family and community interventions. Ursel (1984) found that 46% of her respondents in Winnipeg had personally known a woman who had been abused, yet only 8% had reported an incident to the police. Kennedy, Forde, Smith, and Dutton (1989) also reported a high level of community non-intervention. In their Toronto sample, almost 47% of respondents knew a battered wife, yet only 11% had called the police.

Kennedy and Dutton (1987, 1989) surveyed 1,045 Albertans and found that 46% reported they had known a woman who had been abused either physically or psychologically by her husband. In only about a third of the cases did the respondent report having done anything about the problem. When something was done, counselling was offered to the victim in half the cases and the respondent reportedly intervened in about a third of the cases.

Shelters

The development of shelters for battered women is a relatively new phenomenon. MacLeod (1987) identified that there were 71 shelters in Canada in 1979. This number more than quintupled by 1992 when it was reported that there were 376 shelters in the country (MacDonald & Touchette, 1993). In a Statistics Canada (MacDonald & Touchette, 1993) report on shelters, two-thirds of the shelters studied reported that they serviced a combination of areas, including urban, suburban, rural, or reserve communities. Sixteen percent of the shelters rendered services specifically to a rural- or village-type area or a reserve and 12% mainly provided service to an urban community. The average length of stay in a shelter was under one month, with 40% of shelters accommodating women, on average, between 11 and 20 days. Thirty-two percent of the shelters accommodated women for 10 days or less.

MacLeod (1987) noted that the earliest shelters in Canada provided inexpensive, emergency shelter for low income women mostly in urban centres. However, in recognition of the needs of battered women and the apparent dearth of services in the community, shelters expanded the services offered to encompass the needs of women in a variety of situations, including those who live in rural and isolated areas, those with middle- and upper-level incomes, those with disabilities, new immigrants, and so forth. Today, although they may vary in the kinds of services provided, shelters all share the basic function of providing temporary, safe housing for battered women and their children. Additional services may include information sharing regarding the criminal justice system, divorce proceedings, crisis intervention, advocacy services, nursing care, and counselling.

Innes, Ratner, Finlayson, Bray, and Giovannetti (1991) surveyed 75 shelters in 28 cities in Canada and found that services included safe accommodation, counselling, support, and referral to other community-based agencies, as well as strategies to assist in parenting, in enhancing self-esteem, and in developing skills in conflict resolution and anger control. In a survey of 151 shelters, MacLeod (1987) found that 76% reported their primary goal to be the provision of safe shelter and that almost half (47%) of those reported "empowerment of women" as one of their three major goals. MacDonald and Touchette (1993) reported that the most common type of service provided was "general information." Additionally, 94% of the shelters surveyed provided crisis counselling, 87% maintained a crisis telephone line, and 77% provided transportation services. Referrals to other agencies were mostly made to "professional-type services" including: psychological treatment (86%), addiction treatment (86%), medical or nursing services (85%), and legal advice or support (84%).

Despite the growth in the availability of shelters and the augmentation of services within shelters, there is surprisingly little known of the extent to which they are utilized by battered women. In the United States of America, Bowker and Maurer (1987) reported that 26% of a convenience sample of 854 battered women utilized the services of a shelter. And, relative to police services, social services, counselling, health services, and the clergy, battered women's shelters were least likely to be utilized by battered wives. Of 234 women with histories of physical abuse, recruited as volunteers from shelters and other sources in the USA, Follingstad, Hause, Rutledge, and Polek (1992) reported that 10% had utilized a shelter.

In Canada, in 1985, MacLeod (1987) estimated that 42,000 women were accommodated in shelters and that for every woman sheltered, another woman was denied access to a shelter because of overcrowding. In the 1991-92 fiscal year, Statistics Canada (MacDonald & Touchette, 1993) reported that 78,429 women and children utilized a shelter. No national study has been conducted in Canada to determine the extent to which shelters are utilized by battered women. However, MacLeod (1987) reported that in London, Ontario, in 1985, 89% of the battered women who sought help from the coordinated services offered in the community indicated that they did not require shelter.

Surprisingly little research literature has been published related to the effectiveness of shelters. Bowker and Maurer (1987) directed a sample of battered women to rate the effectiveness of various services from which they had sought help.[3] Those women who utilized shelters were most likely to rate the service as very or somewhat effective (56%), a higher rating than those obtained by all other evaluated services. Further, 42% of those who rated the services highly also reported that they were free of violence for at least one year prior to the survey. The effectiveness rating and the cessation of violence were positively correlated.

Henderson (1989) conducted a phenomenological research study of eight battered women's use of social support while in a shelter. All of the women felt supported and safe during their stay at the shelter. Such support provided them with reassurance that they were not the only women who were abused, that they were not "crazy," that the violence was not their fault, that they were right to leave, that there was help for them, and that they could survive on their own. The women indicated that they were not upset upon leaving the shelter nor were they ill-prepared and held positive opinions of the shelter experience. In contrast, another qualitative researcher found that, although women residing in a shelter found it to be a safe place with supportive staff, the counselling needs of the abused women were not met and they were extremely frustrated in their attempts to secure permanent housing, financial assistance, and employment. Many expressed that it was easier to return to their partners than to persist in establishing new lives (Newman, 1993).

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[3] Also reported in Brendtro and Bowker (1989).

Berk et al. (1986) examined the potential for further violence following a stay at a shelter. They concluded that women with a propensity to seek assistance from a shelter are more than twice as likely to experience further violence than women who do not utilize a shelter. However, they uncovered a very interesting interaction effect. Although they found that women with a propensity to use a shelter following a battering incident, on average, experienced over twice the number of beatings than women who did not go to a shelter, if those women sought additional sources of help, they reduced the potential for further violence. For every source of help sought, the number of violence episodes was reduced by a multiplicative factor of .61. They interpreted these findings to mean that the effectiveness of shelters depends on particular behaviours. If a woman's only help-seeking behaviour is to stay at a shelter for a period of time, she may be at further risk of violence, perhaps because her partner will retaliate. However, when she seeks additional sources of help, what Berk et al. conceptualized as "taking control" of her life, she may reduce the likelihood of further violence.

Social Work and Counselling

Although some have suggested that social agencies and social service professionals should be the main source of help for battered wives, critics have claimed that their orientation has served, at least historically, to perpetuate rather than alleviate the problems of battered wives (Dobash et al., 1985; Freedman, 1985; MacLeod, 1980; Pagelow, 1981; Wiebe, 1985). Such an orientation was purportedly grounded in the beliefs that the problem was one of poor communication within the relationship, that individual changes and adjustments, usually on the part of the wife were required, and that the primary role of counsellors was to save the marriage and to keep the family unit intact.

Bograd (1984) claimed that early psychoanalytic models of wife battery were biased against women: "They blamed the victim, focused on internal traits (such as masochism) to the exclusion of social realities, and implicitly sanctioned violence" (p. 558). Most social agencies failed to systematically probe for the presence of wife battery, or if identified, interventions were often influenced by myths about battered wives, which led to minimization of the violence or erroneous conclusions about its aetiology (Bograd, 1982). Further, Bograd suggested, the effects of exposure to wife battery were often confounded with its cause. For example, in many clinicians' diagnostic formulations, a battered wife was considered to have been beaten because she was depressed, paranoid, or a borderline personality. As a result, many treatment strategies ignored violence as the primary treatment issue, defined the battered woman as the locus of the problem, and focused on the presumed psychopathology of the woman or the perceived dysfunctional communication patterns in the couple.

A survey of American mental health professionals, including family therapists, psychologists, and clinical social workers provides evidence supportive of Bograd's (1982, 1984) claims (Hansen, Harway, & Cervantes, 1991). Following their review of two case studies, one in which a man was subsequently convicted for killing his wife and another in which a couple had been referred to therapy by a court, 40% of the responding therapists failed to address the "very dangerous conflict" apparent within the families in question. Additionally, among those who identified the obvious domestic violence, 91% considered it to be mild or moderate in nature. And, 55% of all the therapists reported that no immediate action on their part was required.

MacKay's (1992) work related to the education of "helping" professionals can be interpreted as a continuing condemnation of the role adopted by social work and counselling professionals. She concluded that most 1989 graduates from the "human service professional schools" within Canada were not provided with the requisite skills for identifying or assisting battered wives. Although she could identify some curricular material related to intervention with battered women, and highlighted the protocols and guidelines on wife abuse developed by the Canadian Association of Social Work Administrators in Health Facilities (1985), MacKay (1992) found that if courses were taken by students of various professional schools, they were usually provided on an elective basis or only at the postgraduate level.

To what extent do battered women utilize the services of counselling or social service personnel? The battered women interviewed by Dobash and Dobash (1979) reported that, "if they had been able to share their problem with anyone they would most likely have spoken to a friend or relative, occasionally a doctor, prior to seeking assistance from an official helping agency. Relatives, friends, or doctors sometimes advised the women to seek such assistance but usually the woman decided on her own to do so--in most cases because others were unwilling or unable to help and/or because the violence became unbearable" (p. 200). The majority of the women in their study, however, rarely or never sought assistance from the helping professions. Some considered helping services as inappropriate sources of help and others feared an unsympathetic response, condemnation, or the involvement of child welfare services who could remove their children from the home.

Despite the apparent reservations of some battered women and the noted limitations of the services provided, select battered women do seek the services of social service agencies. Appleton (1980) reported that battered women surveyed in an emergency department sought marriage counselling five times more often than did women who were not abused. And, Bowker and Maurer (1987) found that 50% of the battered women they surveyed had sought assistance from social service and counselling agencies. In the 1982 Canadian Urban Victimization Survey (Johnson, 1988), although 80% of battered wives indicated that counselling services should be made available, only 20% had received support from such an agency.

Research examining the effectiveness of social and counselling services is extremely limited. Only one study that included an evaluation component of such services was identified. Bowker and Maurer (1987) reported that of the battered wives who utilized social services or counselling (one-half of their convenience sample), 47% reported the services to be very or somewhat effective.[4]

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[4] Also reported in Brendtro and Bowker (1989).

Police Services

Police intervention can render a pivotal function in the initiation of legal responses to wife assault. However, the arrest of perpetrators has been simultaneously discouraged and demanded by various groups, and policing policy has varied over time and across jurisdictions throughout North America (Hilton, 1993a, 1993b, 1993c). Although arrest for wife assault has never been explicitly ruled out by policy, police officers have been accorded discretion in deciding whether arrest and charges are warranted. Many have contended that the police response to wife abuse has been inadequate and inappropriate (Dobash et al., 1985; Freedman, 1985; MacLeod, 1980; Pagelow, 1981; Pressman, 1983; Sinclair, 1985; Wiebe, 1985). The apparent reluctance on the part of the police to intervene in wife assault has been attributed to the erroneous beliefs that "domestic disputes" were "private matters" or that responding to domestic violence calls was an inappropriate police responsibility (Buzawa & Buzawa, 1990). These beliefs were not unique to police officers; many in society have believed these to be the case. Consequently, many battered women and their families also believed that the problem was a personal matter and not of concern to the police.

The 109 battered women interviewed by Dobash and Dobash (1979) reported a total of approximately 32,000 assaults during their marriages. Of those assaults, 517, or less than 2%, were reported to the police. Bowker and Maurer (1987) found that the police were the most common "formal" source of help utilized by an American national convenience sample of 854 battered wives. Police officers were contacted by 53% of the women. Finally, Dutton (1987a) completed a comprehensive review of research related to wife abuse and the criminal justice system and estimated that only 6.5% of all incidents of wife abuse were recorded by the police.

In 1982, the Ministry of the Solicitor General and Statistics Canada conducted a survey of approximately 61,000 residents in seven Canadian cities. Respondents were questioned about their experiences of crime and with the criminal justice system. Johnson (1988) reported that the police were called in 44% of the wife abuse incidents estimated in the survey. Outsiders were unlikely to contact the police; of the total number of abuse incidents reported to the police, 20% were reported by someone other than the victim and 80% were reported by victims themselves. Fifty-nine percent of the women who did not report the assault to the police viewed the incident as a personal matter and of no concern to the police. A similar proportion (58%) did not believe the police could do anything about the violence and approximately one half (52%) feared that the perpetrator would seek revenge. One-third (35%) did not report the crime because they wanted to protect the assailant.

In contrast to Johnson's (1988) findings, Kennedy and Dutton (1987) found, in a representative sample of Albertans, that the police were called in about 39% of known wife abuse cases. The authors indicated that they were surprised by this figure because women who had experienced abuse reported rarely calling the police. The authors concluded that this indicated that criminal justice intervention occurs because of the actions of others, such as friends or relatives, not those of victims.

Since the 1980s, legal responses to wife assault have been increasing. Police officers have been encouraged, sometimes required, to take a more interventionist approach when confronted with wife assault cases. Canada was the first country to adopt nationwide charging policies (MacLeod, 1987) and the London, Ontario police force was the first in Canada to introduce a policy instructing police officers to "lay charges whenever there were reasonable and probable grounds to believe that an assault had occurred" (Jaffe, Hastings, Reitzel, & Austin, 1993, p. 74). While charging policies may vary from jurisdiction to jurisdiction, and may be implemented with varying degrees of consistency or rigor, the message in Canada is fairly clear that assaulting one's wife is unlawful (MacLeod et al., 1992).

In 1979, London police officers laid charges in only 2.7% of wife assault cases. By 1983, this figure was 67.3% and as of 1990, the figure had risen to 89.3%. However, this increased involvement has not occurred at the same rate in other jurisdictions. For example, Royal Canadian Mounted Police data indicate a charging rate of 51% between 1985 and 1988 in Ontario (Williamson & Meredith cited in Jaffe et al., 1993) and a Toronto Police Force study found a 31% charging rate for 1985-1986 (Leighton cited in Jaffe et al., 1993).

Most advocates for battered women have insisted that violence perpetrated within intimate relationships must be conceptualized as a criminal offence and that police intervention is required. However, the effectiveness of police intervention as a means of reducing the risk of further violence is a controversial issue among researchers. Two Canadian studies indicated that battered women who had contact with the police were generally satisfied with the police intervention. Johnson (1988) noted that of the abused women who reported a violent incident to the police, 63% rated the overall performance of the police favourably. Seventy-three percent gave the police "good" or "average" ratings on courteousness and 68% rated them positively on their response time. Approximately half (52%) believed they were adequately informed about the progress of the investigation.

Jaffe and his colleagues (Jaffe et al., 1993; Jaffe, Reitzel, Wilson, & Hastings, 1991) studied the effectiveness of arrest for wife assault in London, Ontario. A series of investigations were undertaken, beginning in 1981. The most recent investigation, in 1990, included interviews of 90 women who had been physically assaulted by their partners and who had received one of three interventions: (a) 52 women had police intervention with charges laid, (b) 14 women had police intervention with no charges laid, and (c) 24 women had no police intervention and no charges laid. The authors reported that, overall, the women who had police contact were satisfied with the police response. Three-quarters of the women indicated that the police responded quickly, 65% were satisfied with the advice they received, and 87% indicated that they would call the police again. Of those victims who expressed dissatisfaction with the police response, 19% suggested that the police officers should have been more understanding, 11% believed that charges should have been laid, and 6% believed that more should have been done to protect them, such as removing the perpetrator from the premises. Several women (28%) recommended that more information related to the court process and available community services should be provided by attending police officers.

Jaffe et al. (1993) further reported that there was a significant reduction in the level of violence during the 12 months following police intervention. However, the reduction was only significant in those cases in which charges were laid. And, although the findings suggested that laying of charges resulted in a reduction of further violence, the women's fear of further violence persisted (Jaffe et al., 1991).

Battered women in the United States of America do not appear to rate the effectiveness of police intervention as highly as their Canadian counterparts. Sullivan et al. (1992) interviewed battered women residing in a shelter. On average, the battered women had called police 3.4 times in the six-month period prior to their entering the shelter. Of the women who had contacted the police, 50% were somewhat or very dissatisfied with the police response. In 36% of the cases, the perpetrator was arrested. In those cases, the women were more likely to report being at least somewhat satisfied with the police response. In cases where the perpetrator was not arrested, women were more likely to be somewhat or very dissatisfied with the police response.

Ferraro and Pope (1993) interviewed 17 women who had been assaulted by a partner and who had called the police. Eight women rated the police intervention negatively. Of these eight women, two were arrested and spent a night in jail and one was evicted from her home because her husband received an order of protection against her. The others reported that the police advised they would come to the home or would return, but did not. Some were told that the police could not help. One woman was rebuked for refusing to press charges, and other women reported being treated impolitely. These eight women would not advise other women to call the police if they were battered. Of the nine women who evaluated the police positively, not all found them helpful. These women described the police officers as "professional," or "very nice," but did not believe that the police intervention was beneficial.

Bowker and Maurer (1987) (and Brendtro & Bowker, 1989) reported that 39% of American battered women who utilized police services rated those services as very or somewhat effective. The majority found the services to be slightly or not effective. Thirty-eight percent of the battered wives who reported that the police intervention was very or somewhat effective also reported that they were free of violence for at least one year prior to the survey. Finally, Frieze (1983) surveyed battered wives in the United States of America and reported that of those who called the police as a result of the violence (54%), about one third reported a positive effect, one third indicated that no effect resulted, 16% reported that the police placed the blame on the woman, and 12% experienced retaliation from their husbands. Whether a woman also experienced marital rape did not appear to be associated with her ratings of police effectiveness.

The apparent difference in police effectiveness ratings of American and Canadian battered women may be a critical consideration. The majority of studies related to police intervention that rely on outcome measures other than battered women's evaluations, such as the frequency of further violence have been conducted in the United States of America. Whether these findings are generalizable to the

Canadian situation is unknown.

In a pioneering study and one of the few experimental intervention studies, Sherman and Berk (1984) compared three law enforcement responses to wife assault calls: mediation (trying to restore order, only), separation (ordering the offender away from the premises for 24 hours), and incarceration (arresting the offender). The findings indicated that arresting the perpetrator reduces the likelihood of repeated violence by nearly one half. As Berk (1993) pointed out, despite the cautionary notes of the investigators and the known limitations of basing policy on the results of a single study, many police departments in the United States of America and Canada adopted mandatory arrest policies (Gelles, 1993). Six replication studies were subsequently conducted; the results of which suggest that "arresting the offender prove[s] no more effective than any of the other interventions tried" (Berk, 1993, p. 330).

Hayduk and Avakame (1990/91) examined the deterrence effect of respondents' perceptions of the probability and the severity of a variety of potential sanctions against wife abuse, including retaliatory spousal violence, police involvement, arrest, loss of self-respect, and the disapproval of friends and relatives. Using structural equation modelling, the authors concluded that "none of the direct or indirect effects of the perceived probability or severity of any of the styles of sanctions influenced respondent violence" (p. 19). In some interesting model modifications, the authors found that the more frequently violence occurs, the greater the respondents' perceived probability and severity of sanctions; that is, the effect occurred in the direction other than anticipated and was positive in nature. Although Hayduk and Avakame took this process to be "unreasonable," it may indeed be the case. Berk (1993) noted that there may be "differential" effects on the deterrence of arrest. Citing Sherman, Smith, Schmidt, and Rogan (1992), Berk suggested that individuals with strong social networks (e.g., through jobs, friends, or family) will respond well to arrest, perhaps because they are shamed by the experience. However, individuals with little stake in their communities (e.g., unemployed or unmarried offenders; see Berk, Campbell, Klap, & Western, 1992) will not be deterred. Further, and most importantly, there may be some individuals who could become more violent in response to arrest if they see confrontations with the police as a "challenge." Berk (1993) concluded that a "consistently applied policy of mandatory arrest may actually place some victims at greater risk" (p. 331).

Others have suggested that the effectiveness of arrest on any offender may be transitory (Buzawa & Buzawa, 1990). Dutton (1987b) reported that arrest had a deterrence effect that lasted six months. Within 30 months, he found a 40% recidivism rate, regardless of whether a perpetrator had been previously arrested. Dutton concluded that in the absence of counselling or other activities, interventions on the part of the criminal justice system result in short-term behavioural changes.

In a review of the domestic violence literature, Buzawa and Buzawa (1993) concluded that the deterrent value of arrest is unclear. They highlight several findings in the replication studies of the original Sherman and Berk (1984) study including: (a) one-year following the arrest, victims reported that the frequency of repeat violence increased to almost 25%, compared to 5% for those who were not arrested (Dunford, Huizinga, & Elliott, 1990); (b) arrest followed by relatively rapid release was associated with "enhanced" violence (Sherman, 1992); and (c) although not statistically significant, separation of the offender from the victim was more highly correlated with less recidivism than either arrest or police mediation (Hirschel, Hutchinson, Dean, Kelley, & Pesackis cited in Buzawa & Buzawa, 1993). For the most part, many researchers now question whether the mandatory arrest of a wife abuser protects women from future incidents of abuse (Gelles, 1993; Manning, 1993; Schmidt & Sherman, 1993).

The Courts

Feminists and others have called attention to the "double victimization" abused wives may experience when dealing with the criminal justice system (Buzawa & Buzawa, 1990). Caringella-MacDonald (1988) described several of the barriers to legal avenues for victims of wife battery, including requirements for substantiating evidence, requirements that victims resist to the utmost, the admissibility of victim character or reputation evidence, and the beliefs that marital rape is a contradiction in terms and that wife assault is a private matter. In 1991, the Ministers responsible for the Status of Women at the federal, provincial, and territorial levels adopted a document (*Building Blocks*, 1991) that outlined some of the problems associated with the Canadian justice system's response to crimes of violence against women, including the ideas that wife assault is a family matter, not a criminal offence, and that women are somehow responsible for the violence they experience. The document also states that the criminal justice system "has often created secondary victimization of women victims" (p. 8).

As a result of the work of academics, activists, and practitioners, many laws and criminal justice procedures have been reformed to afford greater protection to victims of wife abuse. For example, prior to 1983, when the sexual offence of rape was abolished and replaced in the Canadian Criminal Code with three increasingly severe forms of sexual assault, it was not possible for a man to be charged with raping his wife. Innes et al. (1991) noted that court services programs for battered wives are being developed in Canada. In New Brunswick (Interdepartmental Committee on Family Violence, 1990) and the Northwest Territories (Task Force on Spousal Assault, 1985), for example, court counsellors are appointed to victims to assist with legal advice and support. And, Manitoba introduced a Family Violence Court intended to handle cases concerning wife abuse in an informed and expeditious manner (Minch, 1990). Included in the Manitoba program are training modules for judges and prosecutors.

Research findings related to the effectiveness of the criminal justice system, and the court process in particular, have, for the most part, revealed an unresponsive and insensitive system of justice for battered women. Crown prosecutors are reportedly unresponsive to cases of wife assault and may only serve to further victimize battered women. Often, battered women are directly or indirectly presumed to be responsible for their victimization and are offered little support in their attempts to have their partners prosecuted (Ford & Regoli, 1993; Walker, 1979). They may be thwarted by prosecutors' reluctance to consider their complaints as serious or by their discouragement from pursuing criminal justice intervention (Ford, 1983). Further, battered women frequently lack knowledge of how court processes operate and may possess unrealistic expectations (Field & Field, 1973; Ford, 1983; Lerman, 1986).

Bowker and Maurer (1987) reported that of the battered women who utilized the services of American district attorneys, 38% evaluated the services as very or somewhat effective. The majority rated the services as slightly or not effective. Frieze (1983) noted that 36% of the battered women she studied in Pittsburgh pressed legal charges. Of those women, 83% of the battered wives and 65% of the battered wives who also reported marital rape found the action to be effective. Ten percent of the battered wives and 25% of the wives who also sustained rape reported that pressing legal charges had no effect. None reported that blame was placed on herself. However, a small number (approximately 4%) reported that their husbands retaliated.

In Canada, Jaffe et al. (1993) evaluated the effectiveness of the court process utilized by women in the London, Ontario area. Sixty-five percent of the battered women who had contact with crown attorneys reported a "sense of complete support." In 1979, when a similar question was asked by the investigators, only 31% of the battered women surveyed were satisfied with the assistance of crown attorneys. In the more recent study, one half (53%) reported that they spent sufficient time with crown attorneys. However, the women indicated that they were concerned about the length of the court process; 54% were distressed about the time required to reach a final disposition of their cases. Half the victims were worried about their safety during this period; one quarter were threatened by their partner; and 9% were assaulted by their partner during the court process.

Regardless of the degree of satisfaction reported by battered women who enter the criminal justice system, a major test of its effectiveness is related to its deterrence potential both in society in general and in inhibiting further violence within particular families. However, little is known in this regard. Berk et al. (1983) provided some indirect evidence that court intervention, particularly court ordered temporary restraining orders, may not be as effective as is generally believed. They constructed a model examining the relationships among numerous exogenous variables and two endogenous variables: the severity of the woman's injuries and whether the man was injured during a "domestic disturbance." Data were obtained from the records of investigating police officers. They concluded that previously ordered temporary restraining orders had no effect on the severity of a woman's injuries that occurred during a subsequent violent incident. Indeed, although not statistically significant, the effect was in a positive direction. The authors cautioned against the summary dismissal of the deterrent potential of judicial intervention; they suggested that critical questions must be raised about its effectiveness. More recent work has also questioned the efficacy of temporary restraining orders. Chaudhuri and Daly (1992) concluded that, if an abusive partner is unemployed, abuses drugs or alcohol, and has a previous criminal history, he is more likely to abuse his partner after she has obtained a restraining order.

It seems that the effectiveness of both police intervention and the courts is selective at best. Men who are well stationed within their communities and who are susceptible to the sanctions imposed may respond favourably. However, the evidence suggests that men who have little to lose, or who hold their community in disregard, are unlikely to be influenced by such sanctions. What is not known is whether such sanctions have a preventive component. That is, do some men refrain from abusing their partners because of the potential sanctions imposed by the police and courts?

The Clergy

In their attempts to seek relief from the violence in their life, many abused women turn to their ministers or religious leaders for help. Thirty-three percent of the battered women included in the Dobash and Dobash (1979) study reported the violence in their marriages to a minister. Appleton (1980) found that, of the women who were seen in an emergency department as the result of a battering incident, 7% intended to seek assistance from their church within the following 24 hours. Finally, Bowker and Maurer (1987) reported that 33% of an American convenience sample of battered wives sought assistance from the clergy.

Although the church may be a source of assistance for battered women, feminists and other advocates of battered women have pointed to the church's complicity in society's tolerance of violence against women. At best, many clerics may have acknowledged the problem of wife abuse but have taken little action in responding to the needs of abused women (Martin, 1989). Alsdurf and Alsdurf (1988) conducted a survey in which many of the criticisms lodged against the clergy were found to be justified.[5] Those ministers who responded indicated some concern for abused women but were ambivalent about the problem because of an apparent theological conflict with that concern. One third of the ministers questioned the reliability of abused women's reports of violence and 28% indicated that women's unwillingness to be submissive caused the violence. The majority reported that they would not advise women to leave their abusive partners and 45% "expressed concern that the husband's violence not be over emphasized and used as 'a justification' for breaking the marriage commitment" (p. 168).

In response to the charge of inappropriate concern and action, many churches in Canada have undertaken programs to educate members and ministers about wife assault and the role the clergy can play in preventing violence or abating its effects. For example, the Anglican Church of Canada developed a program of "information gathering, consciousness raising, and...strategies designed to provide help in immediate crisis situations" (Task Force of the Women's Unit of the Anglican Church of Canada, 1987). In 1983, the General Synod of the Anglican Church of Canada passed a resolution to provide further education for clergy in their roles as counsellors of battered women and to ensure that theological educators provide education about "family violence" and skill training in dealing with the violent family as a mandatory component of education for the ministry.

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[5] A questionnaire was sent to 5,700 ministers from Protestant churches in Canada and the U.S.A. Only 10% of those surveyed responded, leading the authors to suggest that ministers, for the most part, lacked interest in, or even denied, the problem of wife abuse.

There is a great paucity of research related to the effectiveness of ministerial or clerical intervention in wife abuse situations. Bowker and Maurer (1987) found that, of the battered wives they surveyed who had sought assistance from the clergy, approximately one-third (34% reported in Brendtro & Bowker, 1989) found the assistance they received to be very or somewhat effective. Sixty-six percent of the women who sought help from the clergy reported that the care they received was slightly or not effective.

Health Services

Not surprisingly, many battered women have been noted to utilize health services with great frequency. Bowker and Maurer (1987) reported that, of an American national volunteer sample of battered women, 39% reported seeking assistance from physicians or nurses on at least one occasion. Ratner (1991) found that the vast majority of women she surveyed had contact with family physicians and that there was no significant difference in the utilization of such services by battered wives and women free of abuse. However, physically abused wives were more likely to utilize emergency room services, "drop-in" health care centres, public or community health nursing services, psychiatric care, psychological care, and in-patient hospital care than were wives free of abuse. And, women who were exposed to severe psychological abuse were more likely to seek assistance from psychologists and to have greater contact with public or community health nurses. She concluded that, "in addition to the immediate threat of injury, physically abused and severely psychologically abused women have multiple health problems and are frequent consumers of the health care system" (Ratner, 1991, p. 114).

Of the battered women interviewed by Dobash and Dobash (1979), approximately 80% reported seeking the assistance of a physician at least once during their marriage for injuries resulting from violence within their relationship. Almost 40% sought medical attention on five separate occasions. Three quarters of the women who visited a physician received treatment for their physical injuries alone, although most of them informed the physician of the source of the injuries or suspected that the physician knew the cause. Sullivan et al. (1992) reported that, of the battered women they interviewed, 42% indicated they had sought medical attention for the injuries they sustained during an abusive incident. Eighteen percent sought medical attention once, while an additional 18% sought help two or three times. Similarly, Murty and Roebuck (1992) analyzed battered women's crisis calls to a domestic violence intervention agency and found that nearly 20% of the women had visited a physician as a consequence of the violent incident. Finally, Jaffe et al. (1993) found that victims of wife assault utilized a wide range of support services and that family physicians ranked third, following friends and relatives, as the source of support most commonly utilized.

Despite the fact that battered women have been noted to frequently utilize health services, health care professionals have been criticized for their disregard for battered wives. Several researchers have recorded a disparity between the number of battered women who seek assistance from health care professionals and the rates of detection and intervention offered. For example, Warshaw (1993) examined the medical records generated for all female patients admitted to a large American public hospital emergency department in a two week period. Fifty-two records, representing the most obvious cases of deliberate injury caused by another, were included in the analysis. In most, if not all, instances, physicians and nurses failed to recognize that abuse had occurred, failed to incorporate abuse into the discharge diagnosis, failed to make referrals to appropriate resources, such as shelters and legal and counselling services, and failed to file police reports, although all the injuries in the sample were "inflicted by another person, thus constituting assault and battery" (Warshaw, 1993, p. 138). Similarly, the Tearmann Society for Battered Women (1988), in Nova Scotia, reported that, of the women they studied who were residing in a shelter and who had sought medical care following an incident of wife abuse, over one-third indicated that the physician involved did not ask about the circumstances which led to the injury and only 20% indicated that the physician specifically asked if they had been abused.

Kurz (1987, 1990) examined the responses to battered women of staff members in four American hospital emergency rooms by way of participant observation. In only 11% of cases in which wife battery was evident did the staff regard the problem as serious and "view it as legitimately deserving of their time and attention" (Kurz, 1987, p. 72). In these cases, the staff treated the woman, noted battery on the medical record, discussed the problem with the woman and assessed her current circumstances and safety, and attempted to provide assistance or information regarding support services. In 49% of the cases, staff provided, what Kurz termed, a "partial response." These staff members also acknowledged the violence experienced by their patients and attempted to provide some assistance to the women, but their interventions were characterized as "brief" and "routine." In one half of these cases, the staff explained that their partial responses occurred because they found the women to be inconsistent in describing how they were injured, unresponsive, evasive, vague, or not interested. A second factor that resulted in partial responses concerned characteristics of the patient that were perceived to make interactions difficult, such as the presence of alcohol or drug consumption. Finally, the staff explained their responses as being due to their belief that they could not help battered women. In 40% of the cases, the staff did not respond to the battery issue. Generally, these staff members explained their behaviour in a fashion similar to those who provided a "partial" response: the women were evasive; they had a stigmatizing trait, such as alcohol or drug use; or the staff were too busy to respond. However, some staff did report that they did not consider wife battery to be a legitimate medical concern.

What interventions are provided by health professionals in addition to merely identifying battered women? In Dobash and Dobash's (1979) study, only one-third to one-half of the physicians who were informed about the violence within a woman's relationship gave the woman any advice. And, when advice was given, it was invariably to leave the relationship. In some instances, physicians took direct measures to alleviate the potential for further violence, such as discussing the situation with the abusive partner. However, other physicians took a "completely negative and destructive approach" (Dobash & Dobash, 1979, p. 189), such as suggesting that the women were masochists.

In a survey of Canadian family physicians, fewer than one-third of the responding physicians (N = 963) believed that primary care physicians could effectively diagnose physical abuse and about one-quarter believed that they could diagnose emotional abuse (Ferris, 1994). Far fewer believed that they could effectively treat such abuse (22% and 17%, respectively).

Some physicians have been noted to prescribe medications, particularly anti-depressants and anti-anxiety drugs for battered women. Dobash and Dobash (1979) found that women held diverse views on the appropriateness of medication use following a violent incident. Some women believed that physicians prescribed drugs as an alternative to addressing the real problem, whereas others requested medications, believing that they could not cope without them. Most of the women initially rejected the use of medications, but eventually reached a point at which they believed medications were necessary.

In response to the criticisms levied against health professionals, including a lack of attention and inappropriate interventions for battered women, many professional associations have developed educational programs for their members. The Ontario Medical Association (1988) pioneered the field by establishing a committee on wife assault which led to the publication of significant materials on wife assault from a medical perspective, including descriptions of appropriate treatment and emergency department protocols. Pamphlets providing information related to the identification of battered wives, intervention strategies, and local resources have been made available to the association's members. The association has also encouraged the medical schools in Ontario to incorporate medical issues related to wife abuse in their curricula (MacKay, 1992). In 1989, the Health Services Directorate of the Health Services and Promotion Branch of Health and Welfare Canada published guidelines for health care related to abuse, assault, neglect and family violence (Subcommittee on Institutional Program Guidelines, 1989). The guidelines address the specific responses appropriate of health institutions in meeting the needs of battered wives and their medico-legal and forensic responsibilities.

Recently, the Council on Ethical and Judicial Affairs of the American Medical Association (1992) pronounced that physicians are ethically obligated to intervene in cases of wife battery. Further, the Council concluded that physicians must provide more than treatment for injuries and symptoms of abuse; they must identify the problem, initiate the process whereby safety is assured, including an assessment of the immediate danger faced by a battered woman, provide support, fully document the problem, provide information about options and resources, and make any necessary referrals.

Hanvey and Kinnon (1993) examined the Canadian health care sector's response to wife abuse and concluded that, since 1985, health professionals have been exposed to three messages: (a) wife abuse is a significant problem; (b) health professionals are "ill-equipped to detect and appropriately treat/refer women;" (p. 8) and (c) the inadequate response is due to "social norms, the structure and philosophy of medicine, lack of skills and knowledge and the structure of the health care system" (p. 8). Accordingly, resolutions, policy statements, and motions of intent have been made by professional associations and governmental departments in a bid to acknowledge the extent of the problem and to provide direction toward solutions. Educational materials and standards of practice, guidelines and protocols as guides to ideal intervention have been published (e.g., Braham, Furniss, & Holtz, 1992; Campbell, 1986; Canadian Nurses Association, 1992; Hoag-Apel, 1994; Hospital Spousal Abuse Committee, n.d.; Interdepartmental Committee on Family Violence, 1990; Lazzaro & McFarlane, 1991; Sas, Brown, & Lent, 1994; Schoomaker & Shull, 1994; Snyder, 1994; Subcommittee on Institutional Program Guidelines, 1989; Taylor & Campbell, 1992).

Hanvey and Kinnon (1993) noted that curriculum development for health professionals is an area of concern in Canada. They reported that the Mental Health Division of the Canadian Government, Department of Health is conducting a survey of how health sciences faculties, including medicine, nursing, dentistry, pharmacy, physiotherapy, and occupational therapy address family violence issues within their current curricula. Preliminary findings reveal that there is a wide range of attention paid to the issue of family violence, in general, from program to program and from discipline to discipline. Whereas some programs have developed innovative approaches to teaching about family violence, others continue to fail to address the issue. In their final analysis, although they found a great deal of activity within the health sector related to wife abuse, Hanvey and Kinnon concluded that "the initiatives are reaching only a small proportion of those who need education and support...[that] few innovative approaches to service delivery" (p. 37) were evident, and that responsibility for the "issue is fragmented and at times non-existent" (p. 38).

Others have also found evidence that various activities in the health care sector have failed to improve the interventions offered by health professionals. For example, McLeer, Anwar, Herman, and Maquiling (1989) introduced a protocol for obtaining a trauma history in an emergency department in 1977 along with an educational program. The protocol was designed to detect injuries caused by battering. Eight years following the implementation of the program, the researchers studied the rate of identification of battered wives. They found that the 1985 level of identification was not significantly different from the level attained prior to the implementation of the program in 1977. The authors concluded that "the introduction of educational programs, training programs, and protocols for detecting battering is not sufficient for ensuring continued vigilance in detecting injuries caused by battering" (p. 652). As recently as 1991, less than one-quarter of the emergency rooms in Massachusetts had formal protocols in place for the treatment of battered women (Isaac & Sanchez, 1994).

In surveys that have assessed battered women's perceptions of the effectiveness of medical interventions, the majority report that such services are ineffective. Forty-seven percent of the battered women surveyed by Jaffe et al. (1993) approached their physician following an assault and, of those, only 40% found the intervention to be "very helpful." One-quarter of the women who sought assistance from a family physician reported that the physician was not at all helpful. Sixteen percent of the sample utilized hospital services following an assault and 43% rated the service as very helpful; 38% found it somewhat helpful and 19% found it not at all helpful.

Bowker and Maurer (1987) also asked battered women to evaluate the health services they had utilized. Of the battered wives who responded, 8% indicated that the services were very effective, 39% indicated they were slightly or somewhat effective, and 45% reported they were not effective. (Utilizing the same data set, Brendtro and Bowker [1989] reported that 31% found health care personnel to be very or somewhat effective.) The remaining 9% reported that utilization of health services actually led to increased violence directed toward them by their husbands. Further, the presence of marital rape, higher frequencies of marital rape, and higher frequencies of violence in general were inversely associated with the battered wives' effectiveness ratings. Health professionals received lower effectiveness ratings than all other professional groups evaluated. Although the authors could not fully ascertain what influenced effectiveness ratings, they found that, of those who reported health services to be very or somewhat effective, only 25% also reported being free of violence for at least one year prior to the survey. The effectiveness rating of health professionals and the likelihood of cessation of the violence were not significantly correlated.

Campbell, Pliska, Taylor, and Sheridan (1994) surveyed abused women and their advocates from shelters in Michigan about their treatment in emergency departments (ED). Although the sample size was very small, half of the women who had been abused described their experience in the ED as negative. Several of the women believed that the staff were only concerned with their physical injuries or thought that their problems were unimportant. Some indicated that the staff were rude, blamed the women, or treated them in humiliating fashions. The vast majority (81%) reported that the experience was not helpful or not informative.

Warshaw (1993) concluded that when health professionals merely treat the injuries or sequelae of abuse without discussing their underlying aetiology, they "medicalize" the chief complaint and reinforce an abused woman's feelings of helplessness, isolation, and futility. Indeed, she contends that failure of health professionals to confirm or acknowledge the abuse their patients experience is an important factor in the development of subsequent psychopathology. She argues that this occurs because health professionals, in failing to acknowledge the experience of abused women, "inadvertently recreate the abusive dynamic between themselves and their patients" (p. 140).

Perley (1992), the Chief Nursing Officer of a hospital in Texas, identified several organizational and professional factors that may interfere with the provision of effective health care for abused women:

> Health care agencies are generally structured bureaucracies, which promote a sense of external control and helplessness. Barriers of paperwork executed by busy, and sometimes insensitive, clerks may greet the woman who seeks care. Crowded emergency departments triage patients on the

> basis of physical trauma, often oblivious to the deep emotional stress that may accompany a minor wound. Medical personnel treat the independent symptoms, usually without recognizing the underlying patterns of abuse. Women may seek care in a variety of primary and urgent care settings, thus compounding the difficulties with assessment and intervention.
>
> Health care practitioners are not educationally prepared to identify and appropriately manage this complex health care problem for women....Many institutions lack a comprehensive approach to victim assessment and intervention....Personal attitudes and beliefs about domestic violence are a[nother]...impediment to sensitive care...Health care practitioners may have unresolved personal issues stemming from their own family experiences or those of their friends or relatives....Finally, the culture of health care does little to empower the practitioner to become an advocate for the patient. (pp. 236-237)

Primary care physicians who have participated in studies of the effectiveness of the medical treatment of wife abuse have identified several barriers to their successful intervention with victims of wife abuse, including their lack of time (Brown, Lent, & Sas, 1993; Ferris, 1994; Ferris & Tudiver, 1992), their frustration with patients' apparent unwillingness or inability to change (Brown et al., 1993; Ferris, 1994; Ferris & Tudiver, 1992), their lack of training[6] (Brown et al., 1993; Ferris, 1994; Ferris & Tudiver, 1992), the absence of a standard method for detection (Ferris, 1994; Ferris & Tudiver, 1992), and their fear of the perpetrator's potential for retaliation (Brown et al., 1993). Additionally, physicians have acknowledged that the lack of resources for intervention and their unfamiliarity with existing resources impede their effectiveness (Brown et al., 1993; Ferris, 1994).

Is the problem of inadequate intervention on the part of health professionals merely the result of inadequate preparation of individual practitioners or of some organizational or attitudinal barriers that must be overcome, or is it rooted in deeper ideological or structural apparatus? Innes et al. (1991) concluded that health care services for battered wives are grounded in a traditional model that presupposes physical, rather than social aetiology. Accordingly, programs that are developed by health professionals are likely to address physical health problems and employ "stop-gap" measures that do not address the root causes of wife abuse. This approach, the authors claim, is unlikely to prevent recurrences of violence. Further, within this approach, "the degree to which a person achieves recovery and is able to resume a healthy life pattern is determined by the ability of the person to make decisions and to effect personal lifestyle change....The onus of change falls heavily on the shoulders of the individual" (Innes et al., 1991, p. 32).

Bowker and Maurer (1987) suggested that health professionals may not be perceived as effective in dealing with battered wives because their services are most likely sought on the "spur of the moment," whereas other help seeking behaviours may be more "reasoned." Further, they suggested that the short amount of time spent with health professionals, lack of follow-up, and lack of congruence between the expectations of an abused woman and those of nurses and physicians regarding the anticipated outcome of their encounters may account for such low effectiveness ratings.

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[6] Tilden et al. (1994) found, in a survey of health professionals in Oregon, that only 44% of nurses and 40% of physicians recalled any educational content on wife abuse in their training programs.

Finally, Candib (1990) conceptualized family physicians' failure to adequately confront the problem of wife abuse as a consequence of the underlying ideology of family medicine. First, she argued that wife abuse shatters the myth of "domestic tranquility" and physicians' notions of family, the "cornerstone" of their discipline. Second, wife abuse, as it exists, threatens physicians' assumptions about the relationship between men and women; they must acknowledge that there are power inequities between men and women and that the nuclear family may not be safe for women. Such acknowledgements result in significant contradictions for family physicians and consequently inhibit direct action.

Summary

Despite the abundance of literature related to the needs of abused women and the specific roles that institutionalized services, such as health care, criminal justice, pastoral care, and criminal justice must adopt, little is known of the effectiveness of such services. In reviewing the literature, one finds increasing concern for the welfare of abused women and numerous directives for how particular professional groups ought to respond. Yet, little is known about whether these practices are adopted and, if they are, if they are effective. In many instances, authors continue to suggest that institutionalized responses, although ostensibly designed to benefit abused women or to prevent further violence, actually further victimize women. Regrettably, little empirical evidence is available to assess the services available to abused women and to determine whether those services have improved over time.

Conclusions

When we piece together many hints from a vast body of literature, we obtain an emerging profile of the health consequences of wife abuse and the help seeking behaviour of abused wives. However, many methodological shortcomings are associated with the available research findings, including the descriptive nature of many of the studies, the heavy reliance on small non-representative samples, and the infrequent use of comparison groups.

Some of the conflicting findings related to the health status of abused wives may, in part, be explained by the unspecified time lapses in the collection of retrospective data and lack of consideration of battered women's help seeking behaviour. For example, many investigators interviewed women who reported being battered at least once but did not control for the length of time lapsed between the collection of data and the last incident of battery. Further, intervening variables, such as services utilized, have been rarely considered. Yet, a differential effect on health status is likely, depending on a battered woman's help seeking behaviour. Further, a comprehensive review of the effectiveness of various services is difficult to accomplish. As public awareness of wife abuse has swelled, demands for reform and more deliberate action have been made. Accordingly, it is likely that services have improved over time.

The literature relevant to wife abuse clearly lacks a unified analysis of the determinants of help seeking behaviour among battered wives and, more importantly, of the effectiveness of organized responses to wife abuse, particularly in relation to women's health. In 1986, Berk et al. (1986) pointed out that numerous suggestions regarding intervention have been put forward, but that few recommendations have been based on sound research findings. They suggested that part of the problem was that evaluation studies of various intervention strategies rarely employed sound research designs or modes of analysis. Many of the extant research findings were descriptive in nature, based on small, convenience samples, and provided little guidance for policy makers concerned with the development of effective interventions. These problems persist.

Studies in which the effectiveness of particular interventions have been examined have, for the most part, focused on one form of intervention. Although this, in itself, is not a limitation of the studies, *per se*, it has precluded the examination of interactions between and among services. Evaluations of singular responses, in isolation, can be misleading. Battered wives are likely to utilize several services and the interactions among responses must be considered. Thus, a unified analysis is particularly critical.

Some may argue that the intended purpose of various institutional responses to wife abuse is not the alleviation of health problems or the mediation of adverse health consequences associated with exposure to violence. However, as Agudelo (1992) so eloquently described, "regardless of one's view of health, it should be recognized that when we speak of the health-violence relation, we think of violence as producing nonhealth...or being the cause of death....Where there is violence, there cannot be health....Inversely, health presupposes (among other conditions) the overcoming of violence" (p. 369). Certainly, the goal of all organized responses to wife abuse is the elimination of violence in individuals' lives and, consequently, must have a potential, direct or indirect, positive effect on the health status of individuals.

Chapter 3

Methods and Procedures

Purpose of the Study

The purpose of this study is to enlarge our understanding of the effectiveness of various societal responses in alleviating the adverse effects of wife abuse on women's health. Because of the need to control for various factors and to provide a relatively full account of the effectiveness of select services, several questions will be considered:

(a) What are the health consequences of exposure to abuse within intimate relationships?

(b) Do the immediate or long-term health problems of abused women vary, depending on the nature of the abuse to which they are exposed?

(c) To what extent do abused women utilize select support services or sources of help in their attempts to alleviate their situations?

(d) What are some of the determinants of abused women's utilization of select support services?

(e) To what degree are select societal responses to wife abuse effective in enhancing abused women's health?

(f) Has there been an historical improvement in the effectiveness of select societal responses to wife abuse?

Research Design

This study was designed to analyze data collected in a cross-sectional survey and to estimate structural equation models that specify the relationships among various forms of wife abuse, the health consequences of wife abuse, the utilization of selected services, and their effectiveness in mediating the adverse health effects of experiencing abuse within an intimate relationship. These relationships are specified within a series of causal models. Primarily, the models are designed to evaluate the effectiveness of selected societal responses to wife abuse, over time, in their bid to alleviate the adverse health effects of wife abuse victimization.

Sample and Data

The data for estimating and testing the models in this study were derived from the responses of 12,300 randomly selected, English- or French-speaking women, aged 18 years or older, who reside in households[1] in the ten provinces in Canada[2] and who participated in the Statistics Canada, *Violence Against Women Survey* (VAWS) (Mitchell, 1993; Statistics Canada, 1993, 1994a, 1994b; University of Toronto Data Library Service, 1994). The survey was a telephone survey, conducted by Statistics Canada and funded by Health and Welfare Canada through the Family Violence Initiative of the Federal Government.[3] The interviews were conducted between February and June, 1993, lasted from 15 minutes to 3 hours, and were carried out by 30 female interviewers.

Random digit dialling, specifically the elimination of non-working banks sampling technique, was employed to obtain the probability sample. Statistics Canada reported that 47.9% of the random sample of telephone numbers generated for each stratum of the sampling frame, and dialled, reached households, indicating a very efficient sampling pool (University of Toronto Data Library Service, 1994). The sample included 22,319 contacted households, of which 19,309 contained an eligible respondent. The completion rate for the survey was 63.7%; 12,300 eligible women completed an interview.

Computer assisted telephone interviewing was utilized for the survey, which allowed for the administration of a very detailed interview protocol with complicated skip patterns. In addition to surveying the extent to which women worry about their personal safety in routine situations, the extent to which that fear limits their opportunities and freedom of movement, and their techniques for managing threats to their safety, the questionnaire was designed to measure the extent to which women in Canada experience various forms of violence. The forms of violence examined included sexual harassment or non-assaultive threats of violence, such as obscene phone calls, indecent exposure, and harassment in the workplace or by men in positions of authority; violence perpetrated by strangers, dates, boyfriends, and other men (excluding spouses), including sexual and physical assaults; and threats of assault, including face-to-face threats and those offenses classified as the utterance of threats (threats received over the telephone or through the mail). Finally, and most relevant to this investigation, the respondents were questioned about controlling and emotionally abusive behaviour on the part of their marital partners and the extent of violence in their current and previous marriages, or common-law relationships. Finally, the respondents were administered a variety of socio-demographic measures; questions about their health, marriage history, and spouses' socio-demographic characteristics; and questions related to their and their spouses' families of origin.

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[1] Women living in institutions were not included in the sampling design.

[2] Women residing in the Yukon and Northwest Territories were not included in the sampling design.

[3] Households without telephones were not included in the sampling design. However, it is estimated that less than 2% of the target population reside in households without telephones. An adjustment for this undersampling was incorporated into the weighting scheme. Accordingly, all estimates include women living in households without telephone service (University of Toronto Data Library Service, 1994).

Questions related to sexual assault and physical assault were designed, in consultation with the police community, to be consistent with current Canadian legal definitions (Statistics Canada, 1993). The survey respondents were asked to describe violent incidents that they experienced since the age of 16. Those respondents who identified such experiences were asked to provide further details on one incident.[4] In the case of those women who reported violence in their current or former marriages or common-law relationships, detailed information was collected regarding how the incident(s) usually started, the use of alcohol by the offender, the impact of the experience, who was turned to for help, how helpful various services were, whether children witnessed the violence, and several other questions.

Weighting.

Stratified sampling was incorporated in the survey design; each of the ten provinces was divided into geographic subpopulations. In seven of the provinces (British Columbia, Alberta, Saskatchewan, Manitoba, Newfoundland, New Brunswick, and Nova Scotia), two strata were sampled: one representing the Census Metropolitan Areas (CMAs) and another representing the non-CMA areas. Ontario and Quebec each had three strata defined: (a) Toronto and Montreal, respectively, were identified as distinct strata; (b) other CMAs in the province formed a second stratum; and (c) non-CMA areas formed a third stratum. Finally, Prince Edward Island was treated as one stratum because it does not have a CMA (University of Toronto Data Library Service, 1994).

In the case of stratified sampling with simple random element selection within each stratum, each household within a stratum has an equal probability of selection (Frankel, 1983).[5] However, the VAWS respondents do not comprise a simple random sample of women in Canada. Because of the complexity of the survey design, stratification, multiple stages of selection, significant differences in sampling fractions and response rates among the strata, and other factors, the respondents did not have equal probabilities of selection (University of Toronto Data Library Service, 1994). Accordingly, a "case weight" was assigned by Statistics Canada to each respondent. The weights were calculated as follows. First, each household in the sample of telephone numbers, both responding and non-responding, was assigned a weight proportional to its probability of selection; then the weights for the responding households were adjusted to represent those households that did not respond. Next, the weights for those households with more than one residential telephone number were adjusted to reflect that they had a greater probability of selection. A weight was then calculated for each respondent by multiplying her household weight by the number of women in her household who were eligible candidates for the survey. Finally, adjustments were made to the case weights so that the population estimates within each stratum were consistent with Census projected population counts and Census projected province-age group-sex distributions for June 1993 (University of Toronto Data Library Service, 1994).

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[4] In cases where more than one incident of violence was disclosed, one incident was randomly selected by computer as part of the computer assisted telephone interviewing process.

[5] The sample was selected using the Elimination of Non-Working Banks sampling technique, which is a self-weighting sample design (Lavrakas, 1989; University of Toronto Data Library Service, 1994).

In addition to the case weight assigned to each respondent, a weighting factor was necessary for the violent incidents described in detail in the survey. Adjustments were required because: (a) detailed information was collected for only one type of violence, which was randomly selected among eight types of violence possibly experienced by the respondent,[6] (b) some respondents refused to answer detailed questions about the incident, (c) some respondents experienced a particular type of violence committed by more than one man, and (d) when non-spousal violence was selected for detailed enquiry, only the most recent incident was considered.

The survey weights, both those for each case and each incident, when employed, result in estimates that account for the many forms of over- and under-representation reflected in the sample data. However, Statistics Canada officials warned that the procedures to utilize weighting factors, built in to many statistical computation programs, result in "estimates of the variance" within responses that are "almost meaningless" (University of Toronto Data Library Service, 1994).[7] They advised that the weights employed with the data, or any subgroup of the data, be rescaled in order to make the "variance estimates" more meaningful. Such rescaling is accomplished by dividing the weighting factor by the average weight for the relevant group or subgroup of data so that the average weight is equivalent to one. In this instance, the summed weight factor is equivalent to the unweighted number of cases (cf. Moser & Kalton, 1972, chap. 8; SPSS Inc., 1988). This method is said to result in "more reasonable" estimates of the variance and will take into account the unequal probabilities of selection but will fail to take into account the stratification and clustering components of the sample design (University of Toronto Data Library Service, 1994). However, in discussing the issue of variance estimates with Statistics Canada personnel (David Paton, personal communication, October 27, 1994), it was agreed that the standard error of the mean is incorrectly calculated when one applies the weighting factor in SPSS; however, all estimates of variances and covariances are correct and do not require adjustment.[8]

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[6] The categories of violence used for the selection were: (a) sexual assault by a stranger, (b) sexual assault by a date or boyfriend, (c) sexual assault by an acquaintance, (d) physical assault by a stranger, (e) physical assault by a date or boyfriend, (f) physical assault by an acquaintance, (g) physical or sexual assault by a current spouse, and (h) physical or sexual assault by a previous spouse.

[7] Technical support personnel at SPSS Inc. confirmed that SPSS does not truncate integers but does calculate estimates on the basis of the weighted sample and thus recommends that weighting factors be "normalized" to ensure that, when weight factors are summed, they are the "same as the unweighted number of cases," particularly when obtaining tests of statistical significance (SPSS, 1988, p. 189; SPSS, 1993; personal communication, October 27, 1994).

In this study, the sample is limited to those women who have been married at least once or who have lived with a man in a common-law relationship at least once.[9] All estimates of proportions, means, covariances and other statistics for this subgroup are weighted with the weighting factors calculated by Statistics Canada. Accordingly, the estimates are of 9,055,848 women, 18 years of age, who have ever been married or lived in a common-law relationship with a man (86.3% [95% CI: 85.6%, 87.0%] of the population). The estimates related to the incidents of wife abuse are of 2,801,060 incidents.[10] It is important to note that this number is not the number of actual incidents, *per se*, but should be interpreted as the number of marital or common-law relationships in which abuse has occurred, of which any woman can have two: a current and a former relationship. Accordingly, the nine million women in Canada who have ever been married account for 2.8 million relationships in which abuse occurred, but some women account for none, some for one abusive relationship, and some for two. Confidence intervals of any reported estimates are calculated based on the approximate measures of sampling variability provided by Statistics Canada.

Specification of the Models

All the models in this study are specified as "all-η" models (Hayduk, 1987, chap. 7). Specifically, all variables conventionally labelled as exogenous variables, ξ's, in the LISREL nomenclature, are replaced by η's. Accordingly, there are no Φ, Λ_x, or Θ_δ matrices. The variances and covariances conventionally found in the Φ matrix are present as a segment of the Ψ matrix and the Λ_x's and the Θ_δ's become

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[8] The covariance is calculated as:

$$Cov(XY) = \sum_i \sum_j (x_i - \mu_x)(y_j - \mu_y)\, p(x_i\, y_j)\ .$$

The products of the deviations from the means are based on the weighted cases and the probability of the *i* th value of X and the *j* th value of Y appearing together is the sum of the weighted cases. It is only when the standard error of the mean is calculated that the estimates become questionable. Standard error is calculated as:

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}\,.$$

And, SPSS interprets *n* as the number of weighted cases, rather than the sample size, thus grossly underestimating the standard error.

[9] A variable determining respondents' marital history was derived from four variables in the VAWS data set: DVMS1, DVMS2, F7, and F8.

[10] In this instance, wife abuse, defined by Statistics Canada, includes physical assaults, such as threats to hit a woman with a fist or anything else that could cause harm, physical attacks, such as beatings and chokings, and forced sexual activity.

segments of the Λ_y and Θ_ϵ matrices, respectively. The change in specification in no way alters the estimates obtained in LISREL. However, such specification does permit some effects conventionally not possible in LISREL, particularly direct linkages between exogenous latent concepts and endogenous manifest variables and between endogenous latent concepts and exogenous manifest variables.

Analysis

The analyses were all conducted on a IBM-compatible computer with the statistical package, SPSS for MS Windows Release 6.0 and 6.1 (Norušis, 1993). LISREL 7.2 (Jöreskog & Sörbom, 1989), a module of SPSS for MS Windows, was used for all model estimations. PRELIS 1.20 (Jöreskog & Sörbom, 1989) does not support non-integer weighting of cases; it truncates all non-integer weights. Consequently, the covariance matrices were constructed using the bivariate correlations command in the base module of SPSS and converted to covariance matrices using the mconvert command (SPSS, 1993).

Ethical Considerations

In that this research consists of the analysis of data available in the public domain, few, if any, ethical considerations are relevant. The data were provided with no identifying characteristics; the anonymity of the respondents is guaranteed. However, given the sensitivity of the topic and the potential danger respondents faced in agreeing to participate, general comments about the design and conduct of the survey are warranted.

First, in the initial planning phase of the VAWS, consultations with several "women's" groups were undertaken (MacLeod, 1992). Many individuals who participated in the consultation process expressed concern regarding the safety of women who would disclose that they were currently experiencing violence within their relationships. They also were concerned about the sensitivity of the subject matter and about the selection and training of interviewers (Statistics Canada, 1993). Designers of the questionnaire believe that they took these concerns into account and paid careful attention to the development of concepts and question wording. The questionnaire was tested among various groups of women, including those who self-identified as victims of violence. Interviewers were selected on the basis of their knowledge about, and sensitivity toward, violence against women and were trained to recognize and respond appropriately to cues that the respondents were concerned about being overheard.

Second, respondents were advised that their participation in the survey was voluntary and that all information they provided would be kept confidential. Further, respondents were advised that, if they had to hang up during the interview, they could call a toll free number to complete the interview at a later time. During the interview, respondents were frequently asked if they were able to continue, particularly if they disclosed abuse within their current relationship. Information related to support services, such as shelters and sexual assault centres, was offered to those who seemed distressed or who were currently in violent relationships. And, interviewers were instructed to take their time and to provide the respondents with as much time as they required in order to relate their experiences.

Chapter 4

The Health Consequences of Wife Abuse

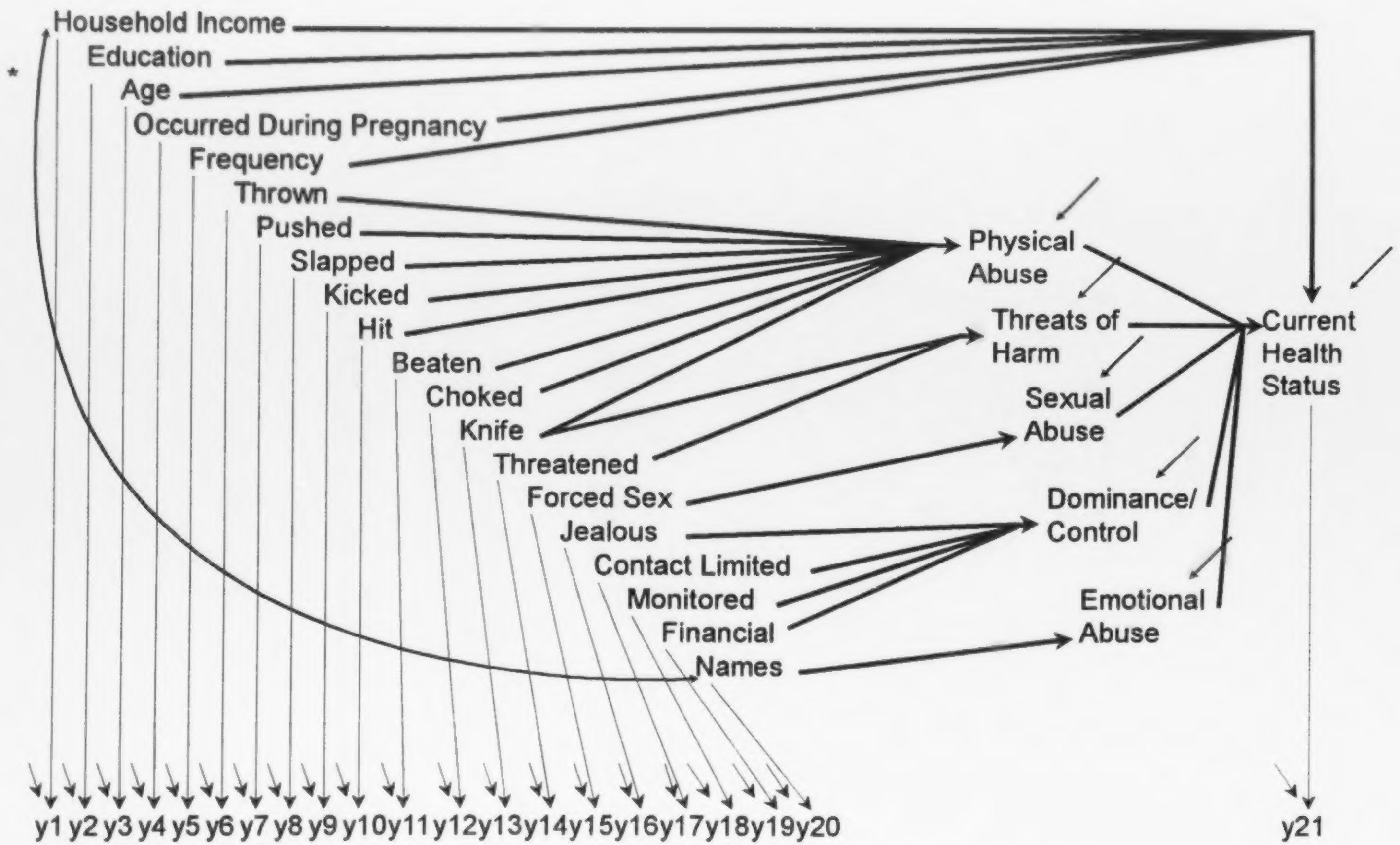
The Model

This chapter and those that follow lay out the most relevant findings of the analyses. The format is comparable to the process undertaken in the modelling process; the chapters are organized to describe the first, second, and additional models, as they were developed. First, the models are described, including the indicators of the concepts included in the models, the measurement structure, the appraised measurement error, and any fixed coefficients. Second, the univariate characteristics of each model's indicators are described. Then, the variance/covariance matrices are presented. Finally, a discussion is provided of the models' estimates and any modifications that may have been introduced.

The initial model, Model 1, is represented diagrammatically in Figure 1. The model is designed to demonstrate that the experience of abuse within intimate relationships affects women's health status. The abuse a woman may have experienced within her intimate relationship, either current or former and either marital or common-law is considered. Women may be subjected to a number of physically abusive actions, ranging from having something thrown at them, to being pushed, grabbed, kicked, or to being beaten up, shot, or stabbed. All of these actions culminate in the overall severity of the abuse experienced. Some actions are clearly more severe or serious than others. In the current model, the severity of the physical abuse experienced and the frequency of that abuse are postulated to influence women's health. In addition to considerations of physical abuse, the model examines the effects that subjection to threats of harm, sexual abuse, exertions of spousal dominance or control, and emotional abuse have on women's health. Whether the abuse occurred at the time of a woman's pregnancy is also included. Finally, select socio-demographic factors known to influence health, including a woman's total household income, education, and age are included in the model. As a result of their inclusion, these socio-demographic effects were controlled as LISREL estimated the effects of the abuse variables.

It should be noted that the three socio-demographic variables included in the model (household income, education, and age) relate to a respondent's current status. However, her current status may differ significantly from what it was at the time of the relevant incident. Unfortunately, we could not determine the values at

Figure 1 Model 1: The Health Consequences of Wife Abuse


*
Household Income
Education
Age
Occurred During Pregnancy
Frequency
Thrown
Pushed
Slapped
Kicked
Hit
Beaten
Choked
Knife
Threatened
Forced Sex
Jealous
Contact Limited
Monitored
Financial
Names
Physical Abuse
Threats of Harm
Sexual Abuse
Dominance/ Control
Emotional Abuse
Current Health Status
y1 y2 y3 y4 y5 y6 y7 y8 y9 y10 y11 y12 y13 y14 y15 y16 y17 y18 y19 y20
y21

* All possible covariances allowed.

the time of the incident. Accordingly, the variables are modelled so that their influence on women's current health status is controlled.

The Measurement Structure

Murray Straus, the original developer of the Conflict Tactics Scales (CTS) (Straus, 1979), from which some of the questions in the Violence Against Women Survey (VAWS) were derived, conceptualized the use of verbal and nonverbal acts that "symbolically" hurt people and the use of physical force as two distinct modes of dealing with conflict.[1] Straus also suggested that the acts that carry a risk of causing serious injury can be conceptualized as "wife-beating" when used by a husband against his wife. In many studies, the items on the CTS have been scored according to the frequency of their occurrence and then summed. However, Straus has acknowledged that frequency weighted scales do not "reflect the differences in severity of violence inherent in the hierarchical structure of the violent acts" (Straus, 1990b, p. 539). For example, a woman who had been slapped half a dozen times in a year would score higher than a woman who was severely beaten on three occasions.

As a result of this and other acknowledged drawbacks, and likely because of the widespread criticism of the CTS (cf. Brinkerhoff & Lupri, 1988; Brush, 1993; Dobash & Dobash, 1988, 1992; Kurz, 1993; Pagelow, 1984; Straus, 1990a; Yllö, 1988), Straus (1990b) introduced additional methods of scoring the scales. In reference to the physical aggression items, the items can be weighted by the frequency of occurrence of each act, or weighted by the product of the frequency times a weight for the severity, or by using Guttman scales.[2] However, none of these approaches resolves all the problems associated with the confounding of severity and frequency. For example, the suggestion to create three scales or rates for "minor," "severe," or "very severe violence" implicitly suggests that all acts included within each scale are of equal severity.[3] Alternatively, Guttman scales, account for the hierarchical nature, or increasing severity, of the acts, if one accepts Straus's ordering. However, is being hit with "something" unarguably more severe than being hit with a fist? Additionally, such scaling precludes the consideration of the frequency of each act.[4] The most promising approach, the severity weighted scale also has limitations. Most significantly, the underlying assumption that these acts are intercorrelated and arise from a common cause persists. Yet, when Hayduk and Avakame (1990/91) subjected this type of measurement structure, wherein several indicators measure the same concept, to the more stringent test provided by multiple-indicator structural equation modelling, rather than the test of internal consistency provided by factor analysis, they concluded that no single dimension underlay three of the CTS items: having something thrown, being pushed, grabbed, or shoved, and being slapped.[5]

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[1] A third mode specified by Straus (1979) was the use of rational discussion, argument, and reasoning. This conceptualization was subjected to factor analysis wherein four factors were isolated. Two of the factors corresponded to reasoning and verbal aggression. The other two related to physical aggression: one factor contained the acts ranging from having something thrown at oneself to being beaten up and the other contained the two most severe acts, being threatened with a knife or gun and the use of a knife or gun. Straus reported that the fourth factor suggested that "serious" violence was distinguishable from what he termed "'ordinary' or 'normal' use of force" (Straus, 1979, p. 82).

Several other factor analyses have been conducted on the CTS. Jorgensen (1977) uncovered three factors, although he did not include the severest forms of physical aggression in his analysis. Hornung, McCullough, and Sugimoto (1981) also reported the presence of three distinct factors, although they excluded the "reasoning" items. Consequently, their three factors pertain to verbal aggression, physical aggression confined to the acts ranging from throwing something to hitting, and "life-threatening violence," including beatings and the use of knives and guns. Barling, O'Leary, Jouriles, Vivian, and MacEwen (1987) obtained similar results, although they cautioned that a separate "life-threatening" scale would result in extremely skewed data because of infrequent occurrence and a truncated range.

[2] Severity is defined as "injury producing potential" (Straus, 1990b, p. 539).

The items included in the VAWS to assess a woman's exposure to violence, committed by her current or former partner, are similar to those in the physical aggression subscale of the CTS, although significant revisions to the subscale were made. First, the CTS consists of a preamble suggesting that couples frequently have conflict within their relationships and that different techniques or strategies often are used during a dispute. The VAWS omitted this preamble and set the questions in the following context: "We are particularly interested in learning more about women's experiences of violence in their homes. I'd like you to tell me if your husband/partner has ever done any of the following to you. This includes incidents that may have occurred while you were dating."

Second, during administration of the CTS, respondents are asked to indicate how often their partners used the specific strategies within the past year and within the entire length of the relationship. The VAWS simply asked respondents to indicate if a particular act had ever occurred. At the completion of the questions related to specific forms of violence, a general question related to the number of times those things occurred was posed.

Third, the CTS is designed so that increasingly severe acts of violence are explored, regardless of the respondents' answers to previous questions. In the VAWS, questions concerning violence ranged from threats of violence to increasingly severe acts, as well. However, respondents who responded negatively to three consecutive items "skipped out" of the question sequencing and were asked "Has he ever been violent toward you in any other way?" Those who answered negatively to the initial three items and to that question were not asked any further questions about physical violence and skipped to a question about forced sexual activity. The investigators who designed the VAWS questionnaire argued that it was important to itemize violent incidents into discrete categories of behaviour in order to counteract any tendency on the part of the respondents to deny their experience or to fail to identify a particular behaviour as an assault or act of violence. However, they further argued that to subject respondents to a long series of questions related to increasingly severe forms of violence, despite repeated negative responses, as done in the CTS, can suggest to a respondent that she is not considered to be truthful and may, in itself, be "abusive" (Statistics Canada, 1993).

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[3] A scale is obtained if the frequencies of the acts are summed, whereas a rate is obtained if the items are dichotomized (occurred or did not occur).

[4] Straus (1990b) reported that when creating Guttman scales the three severest forms of physical aggression must be combined because of extreme skewness in the data. That is, no distinction is made between being beaten up, being threatened with a knife or gun, and having been shot or stabbed.

[5] For a discussion of why the constraints within multiple-indicator structural equation models seem to provide more stringent tests of the unidimensionality of concepts than the test provided by the internal consistency constraints implicit in factor analysis see: Hayduk (in press) and Ratner, Bottorff, Johnson, and Hayduk (1995).

In light of the different approach taken in the VAWS, and the recognized problems associated with the original CTS, the specification of the measurement structure for the models was challenging. First, summing the items no longer was reflective of their frequency of occurrence but a count of the number of different acts experienced. Second, how could one model the severity inherent in these various acts? Third, specifying a common cause model that would meet the constraints inherent in multiple-indicator structural equation models was likely to result in failure. Most importantly, it was recognized that the research questions posed here are concerned with the effects that lead out of the abuse experienced, the traces of that abuse, and which culminate in health consequences. The questions are not concerned with the sources of that abuse. This understanding led to the query, what difference, if any, might this distinction hold for the measurement structure?

Our first attempt at modelling wife abuse was quickly discarded. This initial model consisted of four underlying concepts: moderate physical abuse, severe physical abuse, sexual abuse, and psychological abuse. Each concept was measured by a single indicator. However, we realized that this style of modelling did not correspond with our thinking and the model was rejected, not on the basis of poor fit, but because of theoretical inconsistency.

Hayduk (personal communication, December 28, 1994) recognized that the various items or observable indicators of abuse were best thought of as *causal indicators*, rather than *effect indicators*. Most frequently, indicators in structural equation models are specified as *effect indicators*; as they were in our initial model. That is, the variance within the relevant observable indicators, and the covariances among them, are said to arise from the latent concepts in the model. However, if we think of the indicators as *causal indicators*, the specified latent concepts arise from, rather than are measured by, the observable indicators (Bollen, 1984; Bollen & Lennox, 1991; Hayduk, 1987, chap. 7). In this instance, it is acknowledged that women respond to the numerous abusive acts that they may experience because of the impact those acts exert, or the traces that are left. One such trace is related to the severity of the physical abuse experienced.

The Indicators

Apart from the five intervening phantom concepts, which are created from, rather than measured by, select indicators in the models, and which are described in a subsequent section, each concept in the model has a single indicator. The following discussion sets out the concepts and their associated effect indicators, the wording of the relevant survey questions, and the coding employed. In the model, there are 20 exogenous variables.

Three exogenous variables collectively represent the respondents' current socio-economic status and age:

(a) *Household income* is measured by the responses to: "What is the best estimate of the total income of all household members from all sources during the past 12 months?" Several questions followed, allowing the interviewer to pinpoint the respondents' household income within $10,000 [DVHHOLD3]. The indicator, *reported household income* (y1) is coded: 1 = < $5,000; 2 = $5,000 - $9,999; 3 = $10,000 - $14,999; 4 = $15,000 - $19,999; 5 = $20,000 - $29,999; 6 = $30,000 - $39,999; 7 = $40,000 - $49,999; 8 = $50,000 - $59,999; 9 = $60,000 - $79,999; and 10 = $80,000+.[6]

(b) *Education* is the respondents' *reported education* (y2) coded as follows: "What is the highest level of education that you have attained?" [DVE9]; 1 = no schooling or some elementary; 2 = elementary school diploma; 3 = some high school; 4 = high school diploma or equivalent; 5 = some trade, technical or vocational school, or business college; 6 = some community college, CEGEP or nursing school; 7 = some university; 8 = diploma or certificate from trade, technical or vocational school, or business college; 9 = diploma or certificate from community college, CEGEP or nursing school; 10 = baccalaureate or undergraduate degree, law degree or teacher's college (e.g., BA, BSc, LLB); and 11 = degree in medicine, dentistry, veterinary medicine, or optometry (MD, DDS, DMD, DVM, DD), master's degree (MA, MSc, MEd), or earned doctorate (PhD, DSc, DEd).

(c) *Reported age* (y3) was determined by the respondents' reported month and year of birth [E10] and is reported in number of decades and fractions thereof [AGE].[7] AGE was capped at 75 years; that is, all those over the age of 75 were coded to be 75 years of age in order to guard against the potential identification of a respondent and any breach of confidentiality (University of Toronto Data Library Service, 1994).

Two exogenous concepts are concerned with when the abuse occurred and how often it occurred:[8]

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[6] All mnemonics and variable labels placed in [ ] brackets refer to those found in the Statistics Canada VAWS data set.

[7] Age measured in number of years has a much larger scale than any other variable in the model and consequently could cause estimation problems. With the age concept measured in intervals of decades and fractions thereof, the effect coefficients related to the age variable are simply interpreted as a one decade increase in age.

(d) *Occurred during pregnancy* refers to threats of harms, acts of physical aggression, and forced sexual activity and has a single indicator, *reported occurrence during pregnancy* (y4) with 0 = no and 1 = yes. The item was worded: "Did this(it) happen at a time when you were pregnant?" [J26 and L25]. Those women who were never pregnant are coded "no" as were those who did not experience any abuse or those who only experienced acts of dominance or control.

(e) *Frequency* is measured by the *reported frequency of abuse* (y5). This item is a recoding of two questions: "Has he been(Was he) violent towards you on more than one occasion?" and "How many different times did these things happen?" [DVJ20 and DVL20]. The responses are coded: 0 = none; 1 = one; 2 = two; 3 = three; 4 = four; 5 = five; 6 = six to ten; and 7 = eleven or more.

The items concerned with overt acts of physical aggression, threats of harm, and sexual abuse were posed to the respondents in the following context: "We are particularly interested in learning more about women's experiences of violence in their homes. I'd like you to tell me if your husband/partner ((any of) your previous husband(s)/partner(s)) has ever done(ever did) any of the following to you. This includes incidents that may have occurred while you were dating."[9] All of the following indicators are dichotomous and are coded: 0 = no and 1 = yes.[10]

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[8] If the only form of abuse reported was one or more of the four acts of dominance or control or name calling, the one act of emotional abuse, questions related to when and how often the acts occurred were not asked. Consequently, the two exogenous concepts concerned with when the abuse occurred and how often it occurred are each coded as 0. That is, these concepts relate to physical and sexual abuse only.

[9] The VAWS was designed so that women who were not exposed to physical attacks were not repeatedly asked questions about increasingly severe forms of violence (as occurs in the original Conflict Tactics Scales). Following questions about being threatened, having had things thrown at them, and being pushed, grabbed, or shoved, women who denied exposure to those physical attacks were asked, "Has(Was) he ever been violent (ever violent) toward you in any other way?" Women who answered negatively were entered into a skip pattern and asked no other questions about physical attacks (they were asked about forced sexual activity). Women who answered affirmatively were asked further questions about possible physical attacks. Fifty-six women were found to report that their current or former partners were violent in another way and who answered negatively to all questions about the specific types of violent acts. These 56 women were treated as physically attacked by Statistics Canada analysts and included in the random selection process for the collection of detailed information. In this study, these 56 women have been assigned the value 0 for all the physical aggression items.

[10] A respondent may have had only one relationship with a male partner, her current relationship, may have had one or more relationships that all ended and was not in a current relationship, or may have had both a current and a former relationship. The following rules determined which relationship would be considered for study. If a woman reported that she experienced any of the acts of physical

(continued...)

(f) *Something thrown* is measured by the indicator *reported something thrown* (y6), which was derived from the questions: "Has(Did) he ever thrown(throw) anything at you that could hurt you?" [J3 and L3].

(g) *Pushed, grabbed, or shoved* is measured by the indicator *reported being pushed, grabbed or shoved* (y7). The relevant survey questions were: "Has(Did) he ever pushed(push), grabbed(grab), or shoved(shove) you?" [J4 and L4].

(h) *Slapped* is measured by the indicator *reported being slapped* (y8). The survey questions were worded: "Has(Did) he ever slapped(slap) you?" [J7 and L7].

(i) *Kicked, bit, or hit with a fist* is measured by *reported being kicked, bit, or hit with a fist* (y9). The survey questions were: "Has(Did) he ever kicked(kick), bit(bite), or hit you with his fist?" [J8 and L8].

(j) *Hit with an object* is measured by the indicator *reported being hit with an object* (y10). The survey questions were: "Has(Did) he ever hit you with something that could hurt you?" [J9 and L9].

(k) *Beaten up* is measured by the indicator *reported being beaten up* (y11). The survey questions were: "Has(Did) he ever beaten(beat) you up?" [J12 and L12].

(l) *Choked* is measured by the indicator *reported being choked* (y12). The survey questions were: "Has(Did) he ever choked(choke) you?" [J13 and L13].

(m) *Knife or gun involvement* is measured by the indicator *reported knife or gun involvement* (y13). The survey questions were: "Has(Did) he ever threatened (threaten) to or used(use) a gun or knife on you?" [J14 and L14].

(n) *Threatened* is measured by the indicator *reported threats of harm* (y14). The survey questions were: "Has your husband/partner (Did your previous husband/ partner) ever *threatened(threaten)* to hit you with his fist or anything else that could hurt you?" [J2 and L2].

(o) *Forced sex* is measured by the indicator *reported forced sex* (y15). The survey

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[10](...continued)
aggression or sexual abuse in either a current or former relationship, but not both, the relationship in which the abuse occurred is selected as the relationship of interest. If a woman reported that she experienced abuse both within a former and a current relationship, only one of the relationships was considered for these analyses. The relationship of interest was selected according to the following: (a) if one of the relationships (current or former) was randomly selected for the detailed incident report of the survey (intimate abuse report), that particular relationship was selected, (b) if no intimate abuse report was completed, the current relationship was selected, and (c) if no detailed incident report was completed, the only type of abuse in the current relationship was the exercise of dominance or control, and the former relationship involved sexual or physical abuse, the former relationship was selected.

questions were: "Has(Did) he ever forced(force) you into any sexual activity when you did not want to, by threatening you, holding you down, or hurting you in some way?" [J15 and L15].

Four acts concerned with the exercise of dominance or control are included in the model. The indicators related to these acts were derived from questions in the VAWS, which were asked prior to any questions about physical aggression or sexual abuse. The items were presented to the respondents in the following way: "I'm going to read a list of statements that some women have used to describe their husband(s)/partner(s). Thinking about your (previous) husband(s)/partner(s), I'd like you to tell me whether or not each statement describes him(any of them). All of the relevant indicators are dichotomous and are coded: 0 = no and 1 = yes.

(p) *Jealous* is measured by the indicator *reported husband as jealous* (y16). The survey questions were: "He is(was) jealous and doesn't(didn't) want you to talk to other men" [H2 and K2].

(q) *Contact limited* is measured by the indicator *reported having contact limited* (y17). The survey questions were: "He tries(tried) to limit your contact with family or friends" [H3 and K3].

(r) *Monitored* is measured by the indicator *reported being monitored* (y18). The survey questions were: "He insists(insisted) on knowing who you are(were) with and where you are(were) at all times" [H4 and K4].

(s) *Limited to finances* is measured by the indicator *reported being limited to finances* (y19). The survey questions were: "He prevents(prevented) you from knowing about or having access to the family income, even if you ask(ed)" [H6 and K6].

An additional act constituting emotional abuse is included in the model. The indicator was derived from an item in the list of descriptors of the women's husbands, including the items concerned with the exercise of dominance or control.

(t) *Called names* is measured by the indicator *reported being called names* (y20). The survey questions were: "He calls(called) you names to put you down or make (made) you feel bad" [H5 and K5].

The terminal endogenous variable in this model is *current health status,* which is measured by the respondents' responses to the question: "Compared to other people your age, how would you describe your state of health?" [E12]. The answers are coded: 1 = poor; 2 = fair; 3 = good; 4 = very good; and 5 = excellent and constitute *reported current health status* (y21).

The Causal Model of Wife Abuse

This section details the specification of the model segment that includes the exogenous wife abuse variables and the intervening phantom variables, referred to as the Causal Model of Wife Abuse (CMWA). There are two facets to the range of physically aggressive acts that women experience within abusive relationships: the frequency of the acts and the severity of the acts. In the current model, the frequency of the acts is not conceptualized as a unique phantom variable, or a composite of the various acts, solely because of the way in which the VAWS was administered. That is, the only available information concerning the frequency of the abuse was collected by way of a general question about the number of different occasions in which a woman's partner had been violent toward her; no attempt was made to quantify individual acts.

The phantom variable *severity of physical abuse* is a composite of the seriousness of the various forms of physical aggression that a woman may experience. In this case, seriousness is defined as the injury-producing potential of each act. The influence of each act is set according to the weights devised by Straus (1990b).[11] The relatively less severe acts of having something thrown, being pushed, grabbed, or shoved, and being slapped are each assigned an influence value of 1.0; the effect from each of these causal indicators to the phantom concept severity of physical abuse is fixed at 1.0. Being kicked, bit, or hit with a fist is assigned an influence value of 2.0. Being hit with an object is assigned an influence value of 3.0. Being beaten up and being choked each contribute a value of 5.0 to the composite variable *severity of physical abuse*. Lastly, the involvement of a knife or gun contributes a value of 8.0 to the composite variable.

In addition to physical abuse, women may be subjected to threats of harm. One act consists of men threatening to hit their partners with their fists or anything else that could cause harm. This act is modelled as a causal indicator of the phantom variable *threats of harm* and its effect is fixed at 1.0. Additionally, the causal indicator involvement of a gun or knife seems to include a component suggestive of threatening behaviour. Specifically, the act includes those incidents when a man *threatened* to use a knife or gun but did not. This additional causal indicator of the phantom variable *threats of harm* was modelled so that its influence was estimated.

Sexual abuse is also a phantom variable and is derived from the act of forced sexual activity. The effect is fixed at 1.0.

The phantom variable, the exercise of dominance or control, is conceptualized as a composite variable made up of four acts or behaviours (a husband's jealousy, particularly of a woman's social contact with other men, having one's contact with family or friends limited, having one's whereabouts monitored, and having one's access to the family's finances limited). In this instance, each indicator is provided an influence weighting of 1.0. Dominance or control can assume a span of activities or behaviours. This concept implicitly suggests that each additional act of dominance or control contributes to the pervasiveness of this form of abuse.

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[11] Straus (1990b) reported that the weights were selected in consultation with his colleagues.

Finally, the phantom variable, emotional abuse is derived from the act of calling a woman names in order to degrade or demean her. The influence of the causal indicator on the phantom variable is set at 1.0.[12]

When modelling causal indicators, in contrast to effect indicators, all of the sources of variance in the effect variable must be included. If a causal indicator is omitted, part of the construct is omitted (Bollen & Lennox, 1991). Because the phantom variables have no manifest indicators, their meaning arises from their creation as composite variables of their respective causal indicators (Hayduk, 1987). If one or more causal indicators are not available, we can compensate or adjust for the contribution of these other variables by fixing the corresponding ψ at a specific nonzero value. If we postulate that all the concepts necessary for the definition of a particular phantom concept are present, we would specify the corresponding ψ to be zero.

In Model 1, we know that not all sources of the *severity of physical abuse* are present in the model. As noted in footnote 9, 56 respondents reported that their partners had been violent toward them although they denied being exposed to any of the cited physical aggression items. This suggests that the span of physical aggression items included in the model is not comprehensive. The remaining phantom variables are also not fully explained by their respective causal indicators. Accordingly, the ψ values associated with each of the phantom variables should be fixed at a nonzero value. Determination of the appropriate values is addressed in a subsequent section of this chapter.

The Measurement Error

Each concept that has a specified effect indicator is scaled by the specification of the value 1.0 as the link between the concept and its indicator. The concepts are adjusted for a specific proportion of measurement unreliability in their respective indicators. With this approach, information about the quality of measurement is incorporated into the models (Hayduk, 1987). That is, measurement error for each indicator is fixed at a value equivalent to a specified proportion of the indicator's variance. The remaining variance in the indicator is then fully attributed to its corresponding concept. The assessed proportion of each indicator's variance, set as error, was determined as follows.

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[12] Tolman (1989) factor analyzed the data of 614 men and women who had entered a domestic violence program and found that two factors explained their responses to items concerning acts of nonphysical abusive behaviour frequently described as emotional abuse, verbal abuse, psychological abuse, or mental degradation. One factor, labelled dominance-isolation by Tolman, included items such as: "my partner monitored my time and made me account for where I was," "my partner was jealous of other men," "my partner did not want me to socialize with my female friends," "my partner tried to keep me from seeing or talking to my family," and "my partner used our money or made important financial decisions without talking to me about it." These items are very comparable to the causal indicators of dominance/control in the specified model. Tolman's second factor, labelled emotional-verbal included: "my partner called me names," and "my partner said something to spite me." Again, this factor appears comparable to the phantom variable, emotional abuse.

(a) *Household income*. Indicators related to income should be given relatively large error variances reflecting the rounding error associated with the indicator and, more importantly, the tendency for people to not report their incomes accurately because of the sensitive and personal nature of the question. It is generally believed that individuals with high incomes refuse to report their incomes more frequently than do individuals with low incomes, suggesting that the missing data that occur are non-random in nature (Anderson, Basilevsky, & Hum, 1983). It may seem surprising that a concern for the sensitivity of this question is addressed in light of the overall sensitive nature of the VAWS. However, Ratner (1991) found in a survey of women that more than 8% reported that they did not know their household incomes. A further 6% of the respondents refused to answer the question. Only 1% of the respondents to the same survey failed to complete the CTS. This finding, and general anecdotal evidence concerning the nature of the verbal responses to her survey questions, led Ratner to conclude that questions related to income were more sensitive and more prone to non-response bias than questions related to violence. The error variance associated with the indicator *reported household income* was specified to equal 15% of the variance in the indicator.

(b) *Education*. A moderate error variance (5%) was assigned to *reported education* primarily to account for the possibility that some credentials do not fit into the coding scheme. For example, nurses with earned baccalaureate degrees may have been inadvertently coded with some community college, CEGEP and other nursing programs. Further, a diploma earned from a 12-week business college program is coded higher than some one who "dropped out" of a baccalaureate program in the fourth year. Finally, some may argue that an earned law degree following the completion of another undergraduate degree should not have been coded lower than a degree in medicine or dentistry.

(c) *Age*. Reports of age often can contain errors due to social pressure to underestimate one's age, forgetting, and preference for certain ages, particularly those ending in "0" and "5." These errors should not be prominent in these data because respondents were asked the month and year of their birth and age was calculated as the interval of time between that date and the date of the survey, expressed in completed solar years (Stockwell, 1976). Accordingly, a 0.5% error rate was allowed.

(d) *Occurred during pregnancy*. It is unlikely that a woman would forget an abusive incident if it occurred while she was pregnant. Pregnancy is a period of heightened awareness and recollection of that time is probably enhanced for women. Some women may have not known they were pregnant, particularly if the pregnancy ended in an early, spontaneous abortion. However, the relevance of the variable lies in whether the male partner was aware of the pregnancy, suggesting that the pregnancy was a motivating factor for his violence. And, if the partner knew, then presumably the woman knew she was pregnant. Accordingly, the indicator was assigned a modest error variance of 1% to account for any coding problems and forgetting.

(e) *Frequency*. For women who experienced frequent occurrences of violence, a question related to frequency is likely to result in a "best guess." Wisely, the survey data were coded so that all reports of six to ten or eleven or more incidents were grouped. Those who reported between one and five incidents may have estimated the number or may have forgotten particular incidents; consequently there is some error proneness associated with the indicator. Accordingly, *reported frequency* was given a modest error variance of 2%.

(f) The indicators concerned with acts of physical aggression and the threat of harm (y6 - y14) were all assigned the same proportion of error. The vast majority of studies on violence against women, including the VAWS, have relied on uncorroborated self-reports. All self-report measures are subject to errors of recall and to a variety of deliberate and unintentional distortions (Straus, 1990a). Accordingly, concerns about the reliability of the responses to questions about exposure to physical aggression and threats of harm are warranted. In light of the marked differences between the VAWS questionnaire and the CTS, the extent to which measures of the reliability and validity of the CTS are applicable to the VAWS is unclear. However, some assurances about the quality of the data obtained in the VAWS can be obtained by considering the relevant literature.

Several strategies have been undertaken to determine the reliability of self-reports of exposure to violence. Szinovacz (1983), for example, administered a modified version of the CTS to 103 couples, most of whom were randomly selected from the community. Twenty-six couples reported that the men had been physically aggressive toward their wives during the previous year. However, of these couples, in only seven cases did both spouses agree that the husband had been violent. In ten of the couples, only the wife reported the violence and in nine couples, only the husband reported the violence. Whereas several husbands indicated single incidents of violence against their wives, which their wives failed to report, a few wives mentioned multiple violent acts committed by their husbands, none of which were reported by the husbands.

Browning and Dutton (1986) administered the CTS to 30 couples in which violence against the wife had occurred. They also found considerable disparity between wives' and husbands' reports of wife assault. Wives rated significantly more violence for their husbands than the husbands acknowledged of themselves. Assaultive men reported approximately 50% as much violence as their wives reported they committed. The correlation of husbands' and wives' total score on the CTS was .65, although there was marked variability between items. Those items that described the frequency of less severe acts, such as throwing something at the wife, pushing, grabbing, or shoving her, and slapping her correlated between .32 and .41. The more severe acts of threatening the wife with a knife or gun and using a knife or gun correlated at .80 and .68, respectively.

Another strategy to assess the reliability of the CTS was employed by Arias and Beach (1987). They administered the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960), along with the CTS, to 82 men and 90 women in order to assess the relationship between social desirability and reports of wife abuse. The findings indicated that women's social desirability was not significantly correlated with their reports of victimization, or the frequency and severity of the violence reported. In men, social desirability was inversely associated with self-reports of engaging in violent acts ($r = -.23$, $p = .05$). However, among those men who acknowledged engaging in violence, social desirability was not found to be significantly correlated with their reports of the frequency or severity of the violence.

Dutton and Hemphill (1992) also assessed the tendency to respond in socially desirable ways among perpetrators and victims of wife abuse. The abused wife sample consisted of 75 women who had responded to newspaper advertisements and who had ended a physically or psychologically abusive relationship within the previous six months. These women's reports of physical and psychological abuse, measured with the CTS, and reports of psychological abuse, both in the forms of dominance or isolation and emotional or verbal abuse were unrelated to social desirability. The results for men who had been court-mandated to attend a treatment program for assaultive husbands were more equivocal. However, based on their findings, the authors concluded that perpetrators are more likely to provide reports that are influenced by socially desirable responding than are victims.

In light of the findings that women who are victims of wife abuse are not strongly influenced by social desirability and seem to be willing to report their victimization, we would expect a small degree of measurement error. However, the questions were asked about current and former relationships and were not limited to a specific time period. Accordingly, we expected some under reporting caused by honest forgetting. Therefore, a 5% error rate was assigned for each indicator.

(g) *Forced sex*. Although many in the community may believe that the definition of sexual assault is elusive, and many respondents may have held different definitions, the legal system has clearly defined sexual assault. The VAWS questionnaire was developed with that definition in mind and questions were worded to ensure a "best fit." The question itself defines forced sexual activity, as termed in this study, as any sexual activity that is not wanted and which is forced by threatening, holding down, or hurting a woman in some way. Accordingly, because the concept was clearly defined within the question format, minimal measurement error is believed to have occurred, although the respondents likely were subject to some degree of social desirability and a reluctance to define their experience as sexual violence. *Reported forced sex* was assigned an error variance of 7.5% to account for such tendencies.

(h) The indicators associated with the acts that comprise the exercise of dominance and control were assigned error variances ranging from 5% to 10%. The indicators *reported husband as jealous*, *reported having contact limited*, and *reported being limited to finances* were each assigned an error variance of 5%. However, the indicator *reported being monitored* was assigned 10% because there seems to be some room for error in interpretation. It is possible that some women reported that their partners wanted to know whom they were with and where they were because they were concerned about the women's safety and not as a means of control.

(i) *Called names.* The indicator *reported being called names* was assigned an error variance of 5%.

(j) *Reported current health status* was assigned 5% error. Cunny and Perri (1991) reported that a single-item measure of health status, which they conceptualized as an indicator of health-related quality of life, is a reliable method of assessing health-related quality of life. They reported that responses to the question, "In general would you say your health is excellent, very good, good, fair, or poor?" were correlated at 0.86 with the 20-item Short-form General Health Survey of the Medical Outcomes Study (Stewart, Hays, & Ware, 1988; Stewart et al., 1989). The latter is a self-administered questionnaire that assesses physical functioning, role functioning, general mental health, current health perceptions, pain, and social functioning.

Demographic Characteristics of Ever Married Women

The following findings are limited to those women who had ever been married or lived in a common-law relationship with a man (*n* = 10,986); representing 9,055,848 Canadian women, or 86.3% (95% CI: 85.6%, 87.0%) of women, over the age of 18, living in the ten provinces. The majority of these women (64.5%) were legally married at the time of the survey (Table 1 displays their current marital status). Their current ages ranged from 18 to over 75 years (mean age = 46.5 years). Of the group, 59.3% (95% CI: 58.0%, 60.6%) worked at businesses or paid jobs within the previous 12 months. Their education ranged from no schooling or some elementary education to an earned doctorate (median education was a high school diploma). The total income of all members of the household in which these women resided, from all sources during the previous 12 months, ranged from less than $5,000 to more than $80,000; the median income was $39,789 (interpolation employed). The personal income of these women, before deductions, from all sources during the previous 12 months ranged from no income to more than $80,000; their median income was $15,849. Finally, 75.1% (95% CI: 73.9%, 76.3%) of the women lived in an urban setting, 24.4% (95% CI: 23.3%, 25.5%) lived in a rural setting, and the remainder lived in Prince Edward Island.[13]

Ever Married Women's Exposure to Abuse

Exposure to Physical Aggression

A marked difference is noted in the rates of physical aggression committed by women's current partners and that committed by their former partners.[14] Table 2 displays the rates of eight acts of physical aggression committed by current partners. Of those currently residing with a partner, 13.5% (95% CI: 12.6%, 14.4%) reported that at least one of the acts of physical aggression had occurred sometime during the relationship. Table 3 displays the rates for the same acts committed by former partners. Of those who had previously resided with a man (marital or common-law relationship), 43.5% (95% CI: 41.5%, 45.5%) reported that at least one of the physical aggression acts had occurred sometime during the relationship. Finally, of women who had ever been married or lived in a common-law relationship, 26.5% (95% CI: 25.3%, 27.7%) reported experiencing at least one of the acts of physical aggression committed by a former or current partner.[15]

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[13] The sample size of the Prince Edward Island stratum was too small to classify respondents according to their urban/rural setting (Statistics Canada, 1994a).

Table 1 Current Marital Status of Women who have Ever Been Married or Lived in a Common-Law Relationship with a Man[1]

Status	Percentage[2] (%)	95% Confidence Intervals
Married	64.2	63.2%, 65.2%
Common-law	9.2	8.5%, 9.9%
Divorced	8.3	7.6%, 9.0%
Separated	2.1	1.8%, 2.4%
Widowed	10.9	10.2%, 11.6%
Single[3]	4.9	4.4%, 5.4%

[1] Based on the reports of 10,986 respondents representing 9,055,848 women.

[2] Does not add to 100% because 0.5% did not report their current marital status.

[3] Of those who described themselves as single, all had formerly lived in a common-law relationship with a man, but none had been legally married.

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[14] Respondents who were questioned about their experience of abuse within their current and former marital and/or common-law relationships were advised that they should include any incidents that occurred while they were dating their partners.

[15] Note that, in the estimated models, no distinction is made between current or former relationships. The causal structure that characterizes women's immediate health responses, their help-seeking behaviour, and their long-term health status is not specified to differ depending on the status of the relationship. It is exposure to abuse that is the key concern. The prevalence rates for various forms of abuse are broken down by the status of the relationship (former or current) in order to provide full information to the reader. However, this distinction is not evident in any of the models studied.

Table 2 Rates of Physical Aggression Committed by a Current Partner[1]

Act	Percentage (%)	95% Confidence Intervals
Something thrown at wife that could hurt	3.5	3.0%, 4.0%
Pushed, grabbed, or shoved	12.2	11.2%, 13.2%
Slapped	4.4	3.8%, 5.0%
Kicked, bit, or hit with a fist	2.3	1.9%, 2.7%
Hit with something that could hurt	1.2	0.9%, 1.5%
Beaten up	1.4	1.1%, 1.7%
Choked	1.1	0.8%, 1.4%
Spouse threatened to or used a gun or knife	0.7[2]	0.5%, 0.9%

[1] Based on the reports of 8,461 respondents representing 6,690,350 women.

[2] Caution is advised because of the high sampling variability associated with this estimate.

Table 3 Rates of Physical Aggression Committed by a Former Partner[1]

Act	Percentage (%)	95% Confidence Intervals
Something thrown at wife that could hurt	21.5	19.9%, 23.1%
Pushed, grabbed, or shoved	40.1	38.3%, 41.9%
Slapped	29.5	27.7%, 31.3%
Kicked, bit, or hit with a fist	21.9	20.3%, 23.5%
Hit with something that could hurt	11.6	10.4%, 12.8%
Beaten up	19.1	17.7%, 20.5%
Choked	14.5	13.1%, 15.9%
Spouse threatened to or used a gun or knife	10.1	9.0%, 11.2%

[1] Includes women who had current and former partners as well as those who had only former partners. Based on the reports of 4,288 respondents representing 3,738,265 women.

Exposure to Threats of Harm

Almost 7% (6.9%; 95% CI: 6.2%, 7.6%) of women currently married or living in a common-law relationship and 34.6% (95% CI: 32.9%, 36.3%) of women who had previous relationships reported that their partners had threatened to hit them with their fists, or something else that could cause them harm, at least once within the relationship, including the time when they were dating. And, of those women who were ever married or living in a common-law relationship, 18.6% (95% CI: 17.6%, 19.6%) reported being threatened with harm.

Exposure to Forced Sexual Activity

Within their marital or common-law relationships, women were less likely to be forced into unwanted sexual activity than to be exposed to other forms of abuse. Less than 2% (1.6%; 95% CI: 1.2%, 2.0%) of currently partnered women reported that their husbands had forced them into unwanted sexual activity by threatening them, holding them down, or hurting them in some way. These acts were far more likely to have occurred in relationships that had ended; 16.8% (95% CI: 15.5%, 18.1%) of women who had former partners reported experiencing forced sexual activity within the relationship. Eight percent (95% CI: 7.4%, 8.6%) of women who had ever lived with a male partner reported experiencing sexual abuse at some time during the relationship.

Exposure to the Exercise of Dominance or Control

Among women currently residing in a relationship, 14.8% (95% CI: 13.8%, 15.8%) reported experiencing a least one of the four acts constituting the exercise of dominance or control. Table 4 displays the rates of the particular acts committed by current partners. Among women with former relationships, 53.5% (95% CI: 51.6%, 55.4%) reported experiencing at least one of the acts (see Table 5). All in all, 31.3% (95% CI: 30.2%, 32.4%) of women who had ever been in a marital or common-law relationship reported exposure to at least one of the four acts of dominance or control.

Table 4 Rates of Acts of Dominance or Control Exercised by a Current Partner[1]

Act	Percentage (%)	95% Confidence Intervals
Jealous and does not want wife to talk to other men	5.7	5.1%, 6.3%
Tries limiting contact with family or friends	4.1	3.5%, 4.7%
Insists on knowing wife's whereabouts at all times	10.3	9.5%, 11.1%
Prevents access to family income	2.1	1.7%, 2.5%

[1] Based on the reports of 8,461 respondents representing 6,690,350 women.

Table 5 Rates of Acts of Dominance or Control Exercised by a Former Partner[1]

Act	Percentage (%)	95% Confidence Intervals
Jealous and does not want wife to talk to other men	38.0	36.3%, 39.7%
Tries limiting contact with family or friends	32.5	30.6%, 34.4%
Insists on knowing wife's whereabouts at all times	36.2	34.5%, 37.9%
Prevents access to family income	21.6	20.0%, 23.2%

[1] Based on the reports of 4,288 respondents representing 3,738,265 women.

Exposure to Emotional Abuse

Less than 7% (6.7%; 95% CI: 6.0%, 7.4%) of currently partnered women reported that their husbands had called them names to "put them down" or make them feel bad. This behaviour was far more likely to have occurred in relationships that had ended; 39.3% (95% CI: 37.5%, 41.1%) of women who had former partners reported being called names. Approximately one-fifth (20.5%; 95% CI: 19.6%, 21.4%) of women who had ever lived with a male partner reported experiencing this act of emotional abuse at some time during the relationship.

Frequency of Physical Aggression or Forced Sexual Activity

The majority of women who described experiencing physical aggression or forced sexual activity within their current relationship reported that the abuse had occurred only on one occasion (57.8%; 95% CI: 53.6%, 62.0%). About one in ten (10.9%; 95% CI: 8.5%, 13.3%) reported that the abuse had occurred eleven or more times. The pattern is markedly different among those who had terminated a relationship. Of those women who reported physical aggression or forced sexual activity within a former relationship, 42.7% (95% CI: 40.0%, 45.4%) reported that the abuse had occurred on eleven or more occasions. Only 22.1% (95% CI: 19.7%, 24.5%) reported that it had occurred once.

Exposure to Physical Aggression or Forced Sexual Activity During Pregnancy

Only 1.7% (95% CI: 1.3%, 2.1%) of currently married women reported that they had been physically or sexually abused while they were pregnant. This behaviour was far more likely to occur in those relationships that subsequently ended (12.2%; 95% CI: 11.0%, 13.4%). Of all women who had ever been in a marital or common-law relationship, 6.2% (95% CI: 5.6%, 6.8%) reported that they had been physically or sexually abused while they were pregnant. More specifically, of all the women who had ever been married or lived in a common-law relationship and who had been physically abused or sexually abused, 22.0% (95% CI: 20.0%, 24.0%)

reported that the abuse occurred while they were pregnant.

Ever Married Women's Health Status

The majority of women, 18 years of age or older, who have ever been married or lived in a common-law relationship with a man and who live in the ten provinces in Canada reported that their health, compared to others of their age, was very good or excellent (63.9%; 95% CI: 62.9%, 64.9%). Slightly more than one in ten (12.0%; 95% CI: 11.2%, 12.8%) reported that their health was fair or poor. Whereas 9.9% (95% CI: 8.9%, 10.9%) of ever-married women who were free of abuse reported their current health status to be poor or fair, 15.0% (95% CI: 13.6%, 16.4%) of the ever-married women who reported some form of abuse, either in a current or former relationship, reported their health to be poor or fair. That is, ever-married women who experienced some form of wife abuse were 1.6 times more likely, than women who never experienced such abuse, to assess their health as poor or fair.

The Univariate Characteristics of the Indicators in the Model

We randomly selected approximately 50% of all respondents to the survey to form the covariance matrices for the modelling exercises. The remaining half of the data set was reserved for a validation assessment of the final model. The first randomly selected half of the cases (n = 6,200) was used to create the "working" variance/covariance matrices. That is, all model building exercises were based on these data (excluding those women who were never married). The second half of the data set (n = 6,100) was reserved for a validation assessment of the final model. In this way, we could appraise the degree to which mere capitalizations on chance may have influenced the model estimation process.

Displayed in Table 6 are the univariate characteristics of the indicators included in the first model *The Health Consequences of Wife Abuse* based on the responses of the first set of ever-married women, including those who did and who did not experience some form of abuse. The reader is cautioned in the interpretation of the statistics in that particular respondents' values may relate to either a current or former relationship, depending on which relationship was selected for study according to the rules outlined in the previous chapter. It is the relationships among the indicators that are significant in this study, not the values on these specific variables. The univariate descriptive statistics are provided for the purpose of indicating the magnitude of the variance and the shape of the distribution in each indicator.

Table 6 Statistics for the Indicators in Model 1: The Health Consequences of Wife Abuse[1]

Indicator	Range	Mean	S.D.[2]	Skewness	Kurtosis
Household Income (y_1)	1 - 10	6.41	2.37	-0.22	-.83
Education (y_2)	1 - 11	5.65	2.85	0.37	-1.20
Age in Decades (y_3)	1.8 - 7.5	4.41	1.64	0.37	-0.94
Occurred During Pregnancy (y_4)	0 - 1	0.06	0.24	N/A[3]	N/A
Frequency of Abuse (y_5)	0 - 7	1.12	2.24	1.91	2.04
Something Thrown (y_6)	0 - 1	0.11	0.32	N/A	N/A
Pushed, Grabbed or Shoved (y_7)	0 - 1	0.25	0.43	N/A	N/A
Slapped (y_8)	0 - 1	0.15	0.36	N/A	N/A
Kicked, Bit or Hit with Fist (y_9)	0 - 1	0.11	0.31	N/A	N/A
Hit with an Object (y_{10})	0 - 1	0.06	0.23	N/A	N/A
Beaten Up (y_{11})	0 - 1	0.09	0.29	N/A	N/A
Choked (y_{12})	0 - 1	0.06	0.24	N/A	N/A
Knife or Gun Involvement (y_{13})	0 - 1	0.04	0.21	N/A	N/A
Threats of Harm (y_{14})	0 - 1	0.19	0.39	N/A	N/A
Forced Sex (y_{15})	0 - 1	0.08	0.26	N/A	N/A
Jealous (y_{16})	0 - 1	0.19	0.39	N/A	N/A
Contact Limited (y_{17})	0 - 1	0.15	0.36	N/A	N/A
Monitored (y_{18})	0 - 1	0.21	0.41	N/A	N/A
Limited to Finances (y_{19})	0 - 1	0.10	0.29	N/A	N/A
Called Names (y_{20})	0 - 1	0.20	0.40	N/A	N/A
Current Health Status (y_{21})	1 - 5	3.76	1.04	-0.63	-0.14

[1] Based on the reports of 5,539 respondents.
[2] Standard deviation.
[3] Not applicable.

The Covariance Matrix for the Model

Covariance matrices were created with listwise and pairwise deletion of missing cases to determine if there were notable differences.[16] The resultant matrices were comparable. Listwise deletion reduced the case base from 5,539 to 4,782 ever married women; a reduction that occurred mostly because of the number who did not provide information about their household income. Because of the possible bias associated with the missing income data (women with high incomes are more likely to refuse to report their income than women with low income [Anderson et al., 1983] and because income is likely to be associated with many other variables included in the models), pairwise deletion of missing cases was employed in the creation of the LISREL covariance matrix (see Appendix A).[17] The number of women contributing to each of the pairwise covariances ranged from 5,370 to 5,539. The smaller value of 5,370 was specified as the number of cases in the LISREL analysis.

Getting LISREL to Run

The Selection of an Estimation Procedure

Many of the exogenous indicators in Model 1 are dichotomous in nature. Jöreskog and Sörbom (1989) recommended that when some or all of the observed variables are ordinal or discrete, and in the presence of a large sample, weighted least-squares (WLS) should be used as the estimation procedure.[18] They reported that when variables are "*highly* non-normal the $\chi 2$ goodness-of-fit measure and standard errors are...unreliable when produced with the ML [maximum likelihood] or GLS [generalized least squares] methods" (p. 223). However, as Hayduk (1987) pointed out, this approach is only appropriate if one intends to analyze a correlation matrix, rather than a covariance matrix. Additionally, the approach is only appropriate if the observed variables are truncated or censored versions of underlying variables that are truly continuous, interval-level data, and normally distributed. The approach is not designed to manage truly dichotomous or polytomous variables. Researchers studying the robustness of various estimators of covariance structures, in the presence of non-normality, are equivocal about the best approach. In the presence of highly non-normal data where some, or all, of the variables are continuous, Jöreskog and Sörbom (1989) conceded that "it is still an open question whether to use ML (or GLS) or WLS with a general weight matrix" (p. 232). Findings from experimental, or Monte Carlo, studies are equivocal regarding the need to use WLS, rather than ML estimations. And, if one decides to use WLS, "theory provides little guidance in choosing a weighting function" (Long & Trivedi, 1993, p. 88).

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[16] The person weighting factor was employed in the calculation of the matrices. Matrices that were calculated without the person weighting factor were marginally different from those calculated with the weights (some correlations were slightly larger, while others were slightly smaller).

[17] The use of pairwise deletion of missing cases, rather than listwise, results in a matrix that is the listwise matrix with cases added to select parts. Accordingly, it is argued that the pairwise matrix enhances the quality of the data by including those women who are likely to have higher incomes and who may, as a result, have very different responses and needs related to the abuse they experience.

[18] The weight matrix recommended by Jöreskog and Sörbom (1989) is the inverse of the estimated asymptotic covariance matrix of the polychoric (if both observed indicators are discrete ordinal) and polyserial correlations (if one observed variable is continuous and the other is discrete ordinal).

Jöreskog and Sörbom (1989) set out to demonstrate the superiority of WLS over ML in the presence of non-normal variables and concluded that their model fit well regardless of the estimation method used, including GLS, ML, WLS, instrumental variables, two-stage least squares, unweighed least squares, and diagonally weighted least squares and that the differences in the coefficient estimates were small. The most significant difference in the estimation methods concerned the calculation of the $\chi 2$ values and the standard errors (both were larger when WLS was used). In contrast, Browne (1984) found that the $\chi 2$ values were larger than expected when ML was employed with data that violated the assumption of multivariate normality. He qualified his conclusion by suggesting that only leptokurtic distributions, those that are thin or more peaked than normal, resulted in larger $\chi 2$ values with ML. Boomsma (as cited in Bollen, 1989) reported that excessive skewness led to larger $\chi 2$ values, but, as pointed out by Bollen, this may be due to the kurtosis that usually accompanies skewness. Muthén and Kaplan (1985) also reported that the $\chi 2$ value is larger than expected and the standard errors are too small when using ML (their data were skewed, kurtotic, and categorical in nature). Their coefficient estimates, however, were consistent, no matter what estimator was used. They concluded that ML is quite robust with respect to skewed, kurtotic, and ordered categorical variables, "at least when the sample size is not small" (p. 187). In the end, it appears that researchers have found ML to be more robust than originally believed, although the test statistics and standard errors are likely to be biased (Browne & Shapiro, 1988; Chou, Bentler, & Satorra, 1991).

All LISREL estimations in this study were completed with ML. Regarding any remaining concerns about the use of the ML estimator, particularly in relation to the non-interval nature of some of the indicators, if ML resulted in larger $\chi 2$ values than expected, we erred on the side of conservativeness. Second, in that $\chi 2$ tests are sample size dependent and there were more than 900 cases in the relevant data sets, the $\chi 2$ values, no matter what their magnitude, were likely to result in statistical significance in the presence of trivial deviations in the implied covariance matrices. Calculated $\chi 2$ values are not the only means by which the estimated models were assessed for goodness-of-fit. We also considered the size of the standardized residuals, the adjusted goodness-of-fit index, and other parameters. As Hu and Bentler (1995) pointed out, if we mistrust the χ^2 values and fit indices as quantifications of a model's fit, we can always depend on the residuals. "If the discrepancy between the observed correlations and the model-reproduced correlations are very small, clearly the model is good at accounting for the correlations, no matter what the $\chi 2$ test of fit indexes seem to imply" (p. 98).[19] Regarding the standard errors, if they were biased downward, we may have mistakenly judged coefficient estimates to be significant when they were truly not. However, the overall magnitude of the standardized coefficient estimates provide enough indication of their relative significance. This study did not aim to provide an indication of the absolute size of particular effects, but set out to examine the relative influence of various factors.

Setting Start Values

When there are a greater number of latent concepts (η's) than observed indicators in a model, the LISREL assumption for the starting value algorithm is not met (Jöreskog and Sörbom, 1989). Consequently, start values, such that the implied covariance matrix (Σ) initially becomes positive definite, must be provided. The variances of the exogenous latent concepts (the first 20 diagonal elements of the Ψ matrix)[20] were provided with start values equal to the variance in their corresponding indicators minus the amount of variance specified as arising from error (Entwisle, Hayduk, & Reilly, 1982, Appendix B).[21] Additionally, all the covariances among the latent exogenous concepts were specified to equal their corresponding observed covariances in order to reduce the number of coefficients to be estimated and to reduce the size of the output.[22] The number of degrees of freedom for the model Chi-square was correspondingly adjusted downward (190 df) so as not to capitalize on any unearned and undeserved degrees of freedom.

The LISREL Estimates for the Model

Indications of Model Fit

The fully specified model, as depicted in Figure 1, with the ψ values for the five phantom concepts fixed at zero, resulted in (Chi-square (χ^2) = 40.70 with 9 degrees of freedom (df), which occurs with probability (p) .001).[23] The adjusted goodness of fit index (AGFI) was .999. Five standardized residuals exceeded a value of 2.0. The largest standardized residual (2.36) was for the covariance between *reported husband as jealous* and *reported current health status*. The observed correlation between these two indicators was -.06 and the model-implied correlation was -.08. The difference did not appear to be sufficiently large to give us much concern.

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[19] Hu and Bentler (1995) stated that if the average of the absolute values of the differences between the observed and model-implied correlations is .02, we can accept that the model, regardless of the magnitude of the correlations or the $\chi 2$ statistic, is explaining the correlations to within an average error of .02. They further suggested that if the largest difference is small (about .10), the model is only "marginally wrong" for some of the indicators.

[20] Because of the all-η specification used in this study, the first 20 diagonal elements of the Ψ matrix are the variances in the latent exogenous concepts.

[21] In keeping with Jöreskog and Sörbom's (1989) advice, the option NS (do not compute starting values) was inserted on the OU (output requests) line; which required "the program to use the steepest descent method to improve the starting point before the actual minimization of the fit function" (p. 161) began.

[22] Entwisle et al. (1982, Appendix B) proved that, with single indicators, the covariances among the latent exogenous concepts are equivalent to the covariances among the observed variables.

The next step in the development of the model was to introduce additional variance into the phantom variables in order to account for sources of variance not specified within the model. As noted previously, there are, most likely, types or facets of physical abuse, threats of harms, sexual abuse, dominance or control, and emotional abuse to which the respondents were subjected that are not included in the current model.[24] Consequently, the variance in each phantom variable was increased by adding 15% of the variance to the corresponding error term, that is, the Ψ values were fixed at 15% of the estimated variance in the respective phantom variables; the remaining 85% of the variance in the phantom variables is explained by the causal indicators. In order to ensure that the model would not alter the amount of variance in the threats of harm phantom concept, the effect from knife or gun involvement to threats of harm was fixed to equal the value estimated in the previous model (i.e., prior to the specification of variance in the error terms). This effect had been estimated to equal 0.63.[25] This procedure did not change the fit of the model.[26]

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[23] In light of the large sample size (n = 5,370), even the most minute differences between the observed and implied covariances, which may have been no more than trivial departures not worthy of consideration, contributed to the resultant χ^2. When a sample is sufficiently large, we can expect that models with the closest approximation of the covariance matrix will be rejected (Browne & Cudeck, 1993). Following the suggestions of Hayduk (1987) and Hoelter (1983), the size of the sample required to produce a "just" statistically significant difference between the observed and implied covariance matrices was sought. By inserting various sample size values into the LISREL χ^2 formula (χ^2 = 2(n - 1)(value of fit function minimized within LISREL)) we found that a sample of 2,000 women would have produced a χ^2 = 15.15 (p = .09) and a sample of 1,000 women who have produced a χ^2 = 7.57 (p = .58).

[24] Tolman (1989) included the following several items in his dominance-isolation subscale that are not represented in the current model, such as criticizing the way a woman cares for the house, ordering a woman around, acting irresponsibly with money, keeping a woman from medical care, and restricting the use of cars or telephones. In the emotional-verbal subscale the following items, not represented in the current model, were included: being insensitive to a woman's feelings, yelling and screaming, giving the "silent treatment," and acting insensitive sexually. Shields and Hanneke (1988) defined the following acts, which are not represented in the current model, as sexual violence: forcing objects into a woman's vagina, forcing sexual activities with children, forcing a woman to drink urine, forcing a woman to pose nude or in sexual poses for photographic purposes, and forcing sexual activity with others, among other acts.

[25] The resultant number of degrees of freedom was reduced by one to correct for this unearned degree of freedom.

The Coefficients

The model explained 14.3% of the variance in ever married women's current health status.[27] The coefficients of the model effects (both estimated and fixed) are detailed in Table 7. Once select known determinants of health status, including age, education, and household income are controlled, the coefficients indicate that the experience of abuse does not necessarily determine a woman's current health status. The only variable that was statistically significant was the phantom concept, threats of harm. It may seem surprising that threats of harm, rather than actual physical abuse determines women's current health status. This has likely occurred because of the role of knives and guns in abuse. The VAWS did not differentiate between threats of knife or gun use and actual knife or gun use. Of the women who reported that a knife or gun was involved, only two reported physical injuries, which were relatively minor. The vast majority must have been threatened with knives or guns but not stabbed or shot. Consequently, the effect is operating through threats of harm, rather than through physical abuse and it is this causal indicator, alone, that seems to have a causal relationship with women's current health status.[28]

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[26] We retrospectively verified that, had we left the effect from knife or gun involvement to threats of harm free to be estimated, we would have arrived at the identical solution.

[27] Explaining a mere 14% of the variability in current health status may seem unimpressive by most standards. However, there are numerous known determinants of health status, many of which are more directly related. For example, Fylkesnes and Forde (1991) found that symptoms and diseases connected to the musculo-skeletal system, physical activity at leisure time, and workload were significant determinants. In a more recent study (Fylkesnes & Forde, 1992), they concluded that the burden of physical distress, permanent disability, diagnoses of chronic disease, and a preoccupation with health were significant determinants. Barsky, Cleary, and Klerman (1992) found that hypochondriacal attitudes, a tendency to somatize, and the presence of functional disability explained 76% of the variance in the perceived health status of outpatients attending a general medical clinic in a large teaching hospital. Other potential determinants include work satisfaction (Abramson, Gofin, Habib, Noam, & Kark, 1994), the number of children a woman has borne (Winter, Morris, & Murphy, 1993), personality traits, such as neuroticism, self-esteem, and health locus of control (Hidding, de Witte, & van der Linden, 1994) and loneliness (Hidding et al., 1994).

[28] This phenomenon is an acknowledged limitation of the study design. The sampling of cases was restricted to those who were not killed (a likely result of being shot or stabbed), or who were not institutionalized (again, a likely result of being shot or stabbed). Consequently, the effect between knife or gun involvement and physical abuse (which is intended to imply a potential for causing harm) is limited to the effect of being shot or stabbed on those who survive the attack.

Table 7 The Structural Coefficients of Model 1: The Health Consequences of Wife Abuse

Cause	Effect	Unstandard.[1]	Standard.[2]	Fixed (f)/ Estimated (e)
Something Thrown	Severity of Physical Abuse	1.00	0.06	f
Pushed, Shoved, Grabbed	"	1.00	0.08	f
Slapped	"	1.00	0.06	f
Kicked	"	2.00	0.11	f
Hit with an Object	"	3.00	0.12	f
Beaten Up	"	5.00	0.25	f
Choked	"	5.00	0.21	f
Knife or Gun Involved	"	8.00	0.29	f
Threatened	Threats of Harm	1.00	0.78	f
Knife or Gun Involved	"	0.63	0.26	e[3]
Forced Sex	Sexual Abuse	1.00	0.92	f
Contact Limited	Dominance/Control	1.00	0.31	f
Monitored	"	1.00	0.29	f
Limited to Finances	"	1.00	0.32	f
Husband is Jealous	Emotional Abuse	1.00	0.24	f
Called Names	"	1.00	0.92	f
Household Income	Health Status	0.10*	0.21*	e
Education	"	0.05*	0.13*	e
Age	"	-0.09*	-0.15*	e
Occurred During Pregnancy	"	-0.12	-0.03	e
Frequency	"	0.01	0.03	e
Physical Abuse	"	-0.00	-0.02	e
Threats of Harm	"	-0.15*	-0.07*	e
Sexual Abuse	"	0.02	0.01	e

(continued...)

(continued...)

Dominance/Control	"	0.01	0.02	e
Emotional Abuse	"	-0.08	-0.04	e

[1] Unstandardized.
[2] Standardized.
[3] Initially estimated then fixed.
**t* value > 2.0.

Chapter 5

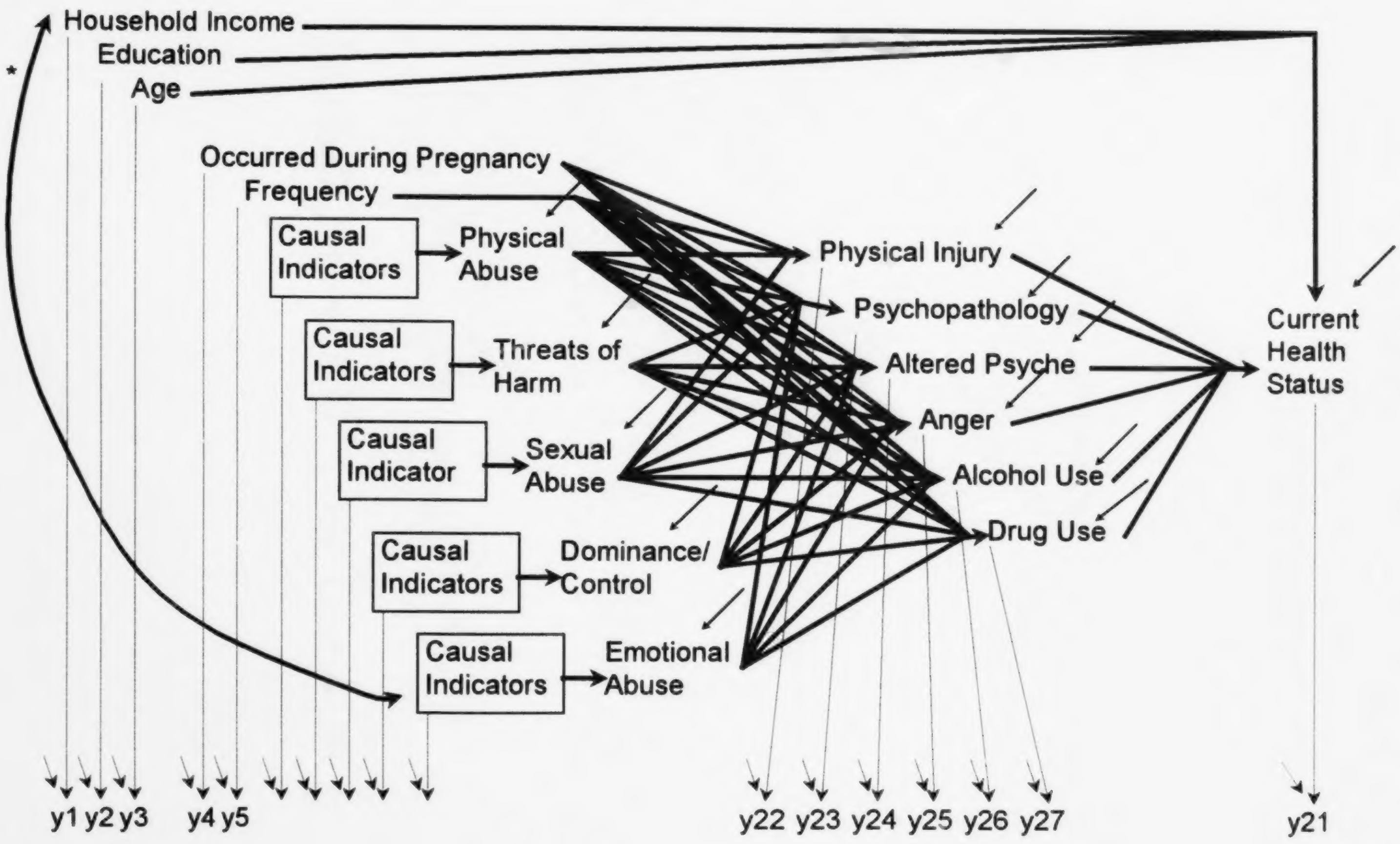
The Immediate and Long-Term Health Consequences of Wife Abuse

The Model

This chapter describes the second in a series of models designed to examine the relationships among various forms of wife abuse, the health consequences of wife abuse, the utilization of various sources of help, and the effectiveness of those sources of help in mediating the adverse effects of wife abuse. In the previous chapter, we examined the effects of various forms of wife abuse on women' health, controlling for select confounding variables. Here, we examine the immediate health effects of wife abuse and their consequent effects in relation to women's perceptions of their health status. That is, the immediate health consequences of wife abuse are placed along a causal pathway that begins with the experience of wife abuse and culminates in women's current health status.

The second model, Model 2, depicted in Figure 2, repeats the first model, however several intervening variables are added: those health consequences that are the direct sequelae of abuse. These variables are the respondents' reports of how the experience of abuse affected them and include the severity of any physical injuries sustained, evidence of psychopathology, alterations to the psyche, or anger, and whether alcohol or drugs were used to help cope with the experience. It is posited that these specific, immediate responses, which differ, depending on the nature and severity of the abuse experienced, contribute to the differences in the current health status of women. Some of the exogenous variables are constrained to not influence the intervening variables. Specifically, threats of harm, the exercise of dominance or control and emotional abuse, as conceptualized here, cannot bring about physical injuries. Further, the socio-demographic variables, household income, education, and age are not postulated to affect the immediate health responses, primarily because they are measures of a woman's current socio-economic status and age, which may differ from what they were at the time of the

Figure 2 Model 2: The Immediate and Long-Term Health Consequences of Wife Abuse


*
Household Income
Education
Age
Occurred During Pregnancy
Frequency
Causal Indicators
Physical Abuse
Causal Indicators
Threats of Harm
Causal Indicator
Sexual Abuse
Causal Indicators
Dominance/ Control
Causal Indicators
Emotional Abuse
Physical Injury
Psychopathology
Altered Psyche
Anger
Alcohol Use
Drug Use
Current Health Status
y1 y2 y3
y4 y5
y22 y23 y24 y25 y26 y27
y21

* All possible covariances allowed. See Figure 1 for measurement structure of CMWA.

abuse.[1]

The Measurement Structure

The Causal Model of Wife Abuse (CMWA), as it was specified in the previous chapter, is a major component of the second model. No alterations to the specification of this segment of the model were introduced for the initial model estimation. The following discussion outlines the indicators and measurement reliability relevant to the new intervening variables.

The Indicators

In the second model, six intervening, endogenous concepts, each measured with a single indicator, are added. The following discussion sets out the concepts, their corresponding indicators, the wording of the survey questions, and the coding employed.[2]

(a) *Physical injury* is measured by *reported injury* (y22), which was derived from the responses to the questions: "Were you (ever) physically hurt in any way?" and, if so, "What were your injuries?" Those who responded that they were never physically hurt [W6] are coded 0. Those who reported sustaining bruises [W7A] are coded 1; those who reported sustaining cuts, scratches, or burns [W7B] are coded 2; those who reported sustaining both bruises and cuts, scratches, or burns are coded 3. Those women who reported sustaining pulled hair, back injuries, ear injuries, concussions, sprains, dislocations, whiplash, or mouth or tooth injuries [W7OTH] were grouped together by Statistics Canada and are also coded 3. Women who reported sustaining fractures or broken bones [W7CD] are coded 4; and those who reported sustaining bruises, cuts, scratches, burns, pulled hair, back injuries, ear injuries, concussions, sprains, dislocations, whiplash, or mouth or tooth injuries, in addition to a fracture, are coded 5. Those who reported sustaining a miscarriage or internal injury [W7EF] are coded 6 and those who reported sustaining any other injury in addition to a miscarriage or internal injury are coded 7. Finally, women who were not abused are coded as missing.[3] Accordingly, *reported physical injury* ranges from 0 to 7.

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[1] We are not suggesting that if we had measures of the women's socio-economic status at the time of abuse that such variables would influence the immediate health responses. For example, there is no reason to believe that socio-economic status would determine if a woman sustained an injury. On the other hand, a woman's age may be a determinant of the severity of injury sustained. Younger women may be more agile and better able to avoid injury.

[2] All mnemonics and variable labels placed in [ ] brackets refer to those found in the Statistics Canada VAWS data set.

[3] The reader should be cautioned that the six indicators for the intervening concepts were initially coded so that those women who were not abused were treated as having missing values. This coding was changed when the base model was found to result in inexplicable estimates. In Final Model 2, non-abused women were coded as zero on all the immediate health consequences.

(b) *Psychopathology*[4] is measured by a derived variable that sums the responses to the question, "How has this experience affected you?" The specific responses were volunteered, without prompting, and include: (i) depression/anxiety [W9D], (ii) fearful [W9F], (iii) more cautious or aware [W9G],[5] (iv) sleeping problems [W9H], (v) shock or disbelief [W9L], (vi) hurt or disappointment [W9M], and (vii) upset, confused, or frustrated [W9P]. One point was given for each affirmative response, which resulted in *reported psychopathology* (y23) ranging from a possible 0 (meaning no psychopathology) to 7 (severe psychopathology). Women who were not abused are coded missing.

(c) *Altered psyche*[6] is measured by an indicator, *reported altered psyche* (y24) incorporating specific responses to, "How has this experience affected you?" Those who responded that they felt ashamed or guilty [W9B], that they suffered lowered self-esteem [W9E], or had problems relating to men [W9J] were given one point for each affirmative response. Additionally, one point was subtracted from the total score if the woman responded that the experience increased her self-reliance [W9K]. The indicator ranges from -1 (meaning strengthened psyche) to 3 (highly damaged psyche). Those who experienced no abuse are coded as missing.

(d) *Anger* is a dichotomous variable with its indicator, *reported anger* (y25) measured by the responses to the question, "How has this experience affected you?" Those who reported that they experienced anger [W9C] are coded 1 = positive; all others are coded 0 = negative. Women who were not abused are coded as missing.

(e) *Alcohol use* is measured by an indicator, *reported alcohol use* (y26) originating from the responses to the question, "Have you ever used alcohol, drugs or medication to help you cope with this experience?" [W10]. Those who reported that they used alcohol are coded 1 = positive; all others are coded 0 = negative, or, if not abused, missing.

(f) *Drug use* is measured by an indicator, *reported drug use* (y27) derived from the responses to the question described for *alcohol use*. Those who reported they used drugs or medication [W10] are coded 1 = positive; all others are coded 0 = negative, with the exception of those who were not abused who are coded as missing.

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[4] Psychopathology is defined in the broadest sense as a psychologically, mentally, or behaviourally disordered state.

[5] We interpreted that, if women reported that they had become increasingly cautious or aware, as a result of the abuse they had experienced, they were increasingly concerned about their environment and personal security, and possibly hypervigilant, which, at the very least, is anxiety-provoking. Clearly this interpretation is not beyond reproach, and some may argue that there are benefits associated with prudent caution and awareness.

[6] An altered psyche is conceptualized to represent any change to a woman's sense of her soul, spirit, or mind; how she values herself, including how she values herself in relation to others, particularly men.

The Measurement Error

Once again, each concept is scaled by the specification of the value 1.0 as the link between the indicator and its underlying concept. The concepts are each adjusted for a proportion of measurement unreliability in their respective indicators. The specified error rate for each of the added intervening variables is 5% and accounts for any coding problems, honest forgetting, and differential susceptibility to social desirability response sets.

The Immediate Health Consequences of Wife Abuse

Forty-three percent of the respondents who experienced at least one form of wife abuse were asked detailed questions about the experience (*n* = 2,019). These reports represent 2,801,060 marital or common-law relationships, either current or former, in which physical abuse or sexual abuse occurred or in which threats of harm occurred.[7]

Physical Injury

Almost one-half of ever-married women who experienced physical or sexual abuse in a relationship reportedly were physically hurt in some way (44.7%; 95% CI: 39.0%, 50.4%). Table 8 displays the rates of specific types of injury incurred by women who were abused.[8] Bruises, in the absence of any other injury, were the most common form of injury (40.1%), followed by cuts, scratches, or burns (14.6%). One in every 11 women who experienced physical or sexual abuse within their relationships (8.8%) sustained a fracture as a direct result of the abuse.

Table 8 Rates of Physical Injury in Ever-Married Women who Experienced Abuse[1]

Response	Percentage (%)	95% Confidence Intervals
Bruises	40.1%	33.8%, 46.4%
(continued...)		

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[7] Note that these values relate to the number of relationships in which threats of harm, physical abuse or sexual abuse may have occurred. It is possible that one woman could account for two abusive relationships, both a current and a former relationship. All estimates are weighted with the incident weighting factor accounting for the many forms of over- and under-representation reflected in the survey design.

[8] Four women reported that they had been physically hurt, but did not specify the nature of their injuries.

(continued...)

Cuts, Scratches, or Burns	14.6%	10.3%, 18.9%
Cuts, Scratches, or Burns and Bruises	13.3%	9.1%, 17.5%
Pulled Hair, Back Injuries, Ear Injuries, Concussions, Sprains, Dislocations, Whiplash, Mouth or Tooth Injuries	4.6%[2]	2.0%, 7.2%[2]
Fractures	8.8%[2]	5.4%, 12.2%[2]
Fractures and Bruises, Cuts, Scratches, Burns, Pulled Hair, Back Injuries, Ear Injuries, Concussions, Sprains, Dislocations, Whiplash, Mouth or Tooth Injuries	7.2%[2]	4.0%, 10.4%[2]
Miscarriage or Internal Injury	4.0%[2]	1.5%, 6.5%[2]
Miscarriage or Internal Injury and Any Other Injury	3.3%[2]	1.1%, 5.5%[2]

[1] Based on the reports of 2,019 respondents representing 2,801,060 relationships.

[2] Caution is advised because of the high sampling variability associated with this estimate.

Psychopathology

Various forms of psychopathology were evident as a result of the physical or sexual abuse that took place in ever-married women's relationships. Slightly more than one half of abusive relationships (51.4%; 95% CI: 45.3%, 57.5%) resulted in women experiencing at least one form of psychopathology. No women reported experiencing more than four forms of psychopathology. Table 9 displays the rates of the six responses that constitute psychopathology in this study.

Table 9 Rates of Psychopathologic Responses in Ever-Married Women who Experienced Abuse[1]

Response	Percentage (%)	95% Confidence Intervals
Depression/Anxiety	13.8%	9.7%, 17.9%
Fearful	21.5%	16.0%, 27.0%
More Cautious/Aware	18.5%	13.7%, 23.3%
Sleeping Problems	****[2]	****[2]
Shock or Disbelief	****[2]	****[2]

(continued...)

Hurt or Disappointment	3.8%[3]	1.4%, 6.2%[3]
Upset, Confused, or Frustrated	4.3%[3]	1.9%, 6.7%[3]

[1]Based on the reports of 2,019 respondents representing 2,801,060 relationships.
[2]Estimate is not released because of high sampling variability.
[3]Caution is advised because of the high sampling variability associated with this estimate.

Altered Psyche

One in ten women reported that the experience of abuse within a relationship increased their self-reliance (9.6%; 95% CI: 5.9%, 13.3%).[9] However, for the most part, women reported experiencing a psychically negative response. Almost one third (30.5%; 95% CI: 24.5%, 36.5%) reported one or more changes to their psyche, including feeling ashamed or guilty, experiencing lowered self-esteem, or having problems relating to men as a result of the experience (see Table 10).

Table 10 Rates of Psychic Responses in Ever-Married Women who Experienced Abuse[1]

Response	Percentage (%)	95% Confidence Intervals
Ashamed or Guilty	9.7%[2]	6.0%, 13.4%[2]
Lowered Self-Esteem	18.4%	13.7%, 23.1%
Problems Relating to Men	10.1%[2]	6.5%, 13.7%[2]
Increased Self-Reliance	9.6%[2]	5.9%, 13.3%[2]

[1]Based on the reports of 2,019 respondents representing 2,801,060 relationships.
[2]Caution is advised because of the high sampling variability associated with this estimate.

Anger

Anger is the singularly most common response to the experience of wife abuse. Thirty percent of women who experienced abuse reported that they were angry about the incident(s) (30.4%; 95% CI: 24.4%, 36.4%).

Alcohol and Drug Use

Alcohol, drugs, or medications were used by many women as a means of coping with, or in response to, the experience of abuse in their relationships. Alcohol use was more common than the use of drugs or medications with 16.9% reporting that they used alcohol as a coping mechanism (95% CI: 12.2%, 21.6%). Unfortunately, because of the survey design, we cannot distinguish between illicit drug use and prescribed medication use, however, 13.9% reported using drugs or medications to cope with their experiences of abuse (95% CI: 9.8%, 18.0%).[10] And, 4.8% (95% CI: 2.1%, 7.5%) reported using both alcohol and drugs or medications.[11,12]

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[9] Caution is advised because of the high sampling variability associated with this estimate.

The Univariate Characteristics of the Indicators in the Model

Included in Table 11 are the univariate characteristics of the indicators included in the second model *The Immediate and Long-Term Health Consequences of Wife Abuse* based on the responses of the first randomly selected set of ever-married women. Those abused women who did not complete the detailed portion of the survey and those women who were not abused are treated as missing cases.[13]

The Covariance Matrix for the Model

Pairwise deletion of missing cases was used in the creation of the variance/ covariance matrix (see Appendix A).[14] The number of cases contributing to a covariance calculation ranged from 934 to 5,539 women.[15] The smallest number of

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[10] The rates for alcohol and drug or medication use include those who reported using both.

[11] Caution is advised because of the high sampling variability associated with this estimate.

[12] The reader will note that three of the intervening concepts, anger, alcohol use, and drug use, are dichotomous variables. Generally, we do not see dependent dichotomous variables used in structural equation modelling. However, there is indirect evidence that dichotomous variables can "behave well" without using polychoric correlational adjustments. For example, Hayduk's (1987) smoking model employed an intervening dichotomous variable. When an additional indicator for smoking status was added, "the model incorporating these two smoking indicators was well behaved and displayed no problems with the dichotomous indicator" (p. 338). Also, see the discussion of the selection of an estimation procedure in chapter 4.

[13] Women who reported exposure to dominance or control or emotional abuse alone were provided missing values for the intervening variables in Model 2 because they were not eligible for the randomization procedure employed by Statistics Canada and consequently were not asked detailed questions about their experience. Additionally, because of the randomization procedure utilized, a woman who experienced physical or sexual abuse in addition to another form of violence may have been selected for detailed questioning about a form of violence other than wife abuse. Accordingly, data concerning the intervening variables are not available for all the women who reported experiencing physical or sexual abuse.

[14] Listwise deletion would have eliminated all non-abused women from all segments of the matrix, as well as deleting all those women who did not complete the detailed portion of the VAWS, leaving a case base of 832 women.

[15] The case base includes all ever-married women who did or did not experience some form of abuse. All the covariances in the matrix that are redundant with Model 1 are based on exactly the same case base as used in the previous model estimation. It is the newly introduced intervening

(continued...)

cases contributing to the calculation of any single covariance was specified as the sample size for the LISREL program (*n* = 934).

Table 11 Statistics for the Indicators in Model 2[1]

Indicator	Range	Mean	S.D.[2]	Skewness	Kurtosis
Physical Injury (y_{22})	0 - 7	1.01	1.67	1.91	3.01
Psychopathology (y_{23})	0 - 4[3]	0.68	0.80	1.37	2.41
Altered Psyche (y_{24})	-1 - 3	0.31	0.72	0.92	1.22
Anger (y_{25})	0 - 1	0.31	0.46	N/A[4]	N/A
Alcohol Use (y_{26})	0 - 1	0.14	0.34	N/A	N/A
Drug Use (y_{27})	0 - 1	0.14	0.35	N/A	N/A

[1] Based on the reports of 5,539 respondents.
[2] Standard deviation.
[3] Although the variable potentially could range from 0 to 7, the observed ranged was 0 to 4.
[4] Not applicable.

Modifications Made to the Model

We found that Model 2 failed to fit the data (Chi-square (χ^2) = 775.50 with 112 degrees of freedom (df),[16] which appears with probability (*p*) less than .001). The adjusted goodness of fit index (AGFI) was .93. Additional signs of poor fit were apparent in the LISREL output. Thirty-six of 188 standardized residuals (19.1%)[17] exceeded an absolute value of 2.0, suggesting that more than random error was required to account for the differences between the observed and implied covariance matrices (Hayduk, 1987, chap. 6). Two general areas of poor fit stood out. First, there was evidence of poor fit between the covariances of some of the indicators associated with the Causal Model of Wife Abuse (CMWA) and the indicators for the six immediate health responses. Second, there was evidence of poor fit among the immediate health response indicators' covariances. The latter type of

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[15] (...continued)
variables that have fewer cases contributing to the covariance calculations and which exclude those women who were free of abuse.

[16] The number of degrees of freedom was adjusted downward by 191 to account for the unearned degrees of freedom obtained by fixing the covariances among the exogenous concepts and fixing the effect from knife or gun involvement to threats of harm, as established in Model 1.

[17] Although there are 27 indicators making up 378 elements in the variance/covariance matrix, 190 elements (the covariances among the exogenous variables) were fixed to equal their observed values. Accordingly the covariances among these indicators were perfectly fit (i.e., the standardized residual = 0).

poor fit could have resulted from an underestimation of the spurious correlations among the immediate health responses (i.e., the effects from the CMWA, as common causes, were not strong enough to explain the correlations), or from an absence of directed effects among the health responses. We undertook to remedy the problems associated with the latter problem prior to making any adjustments to the CMWA. Although changes to the CMWA were likely unavoidable, such changes substantially challenge our conceptualization of wife abuse and so we sought to make any other theoretically plausible changes prior to conceding that the CMWA could not account for the observed covariances among the indicators.

Revisions to the Immediate Health Responses Component of the Model

Eight of the 15 standardized residuals associated with the indicators for the immediate health responses exceeded an absolute value of 2.0. The largest (5.3) occurred between *reported injury* and *reported drug use*. It is very plausible that sustaining injuries leads one to drug use, particularly prescription or over-the-counter analgesics. The second largest standardized residual (4.3) suggested that the covariance between *reported psychopathology* and *reported alcohol use* was underfit. We believe that it is very likely that women experiencing symptoms of psychopathology, including sleep disturbances, anxiety, fear, and hypervigilance are often led to consume alcohol as a coping mechanism. Consequently, we introduced these two effects (injury to drug use and psychopathology to alcohol use) into the model. The addition of the two aforementioned effects resulted in a $\chi^2_{(2\ df)}$ difference of 51.13 ($p < .001$). However, 7 of the 15 relevant standardized residuals persisted in exceeding an absolute value of 2.0. Consequently, we then introduced two effects that were similar in nature to the two previous modifications: an effect from injury to alcohol use and from psychopathology to drug use. We argue that women who experience pain as a result of the injuries they incur are likely led to consume alcohol, and the psychopathologic symptoms experienced by abused women may lead to drug use, particularly anxiolytics (drugs that counteract or diminish anxiety) and sedatives (drugs that exert a soothing or tranquillizing effect). Once again, the χ^2 difference test was significant ($\chi^2_{(2\ df)} = 17.44$, $p < .001$).

In order to address the large standardized residual (3.1) associated with the covariance between *reported altered psyche* and *reported alcohol use* we added a directed effect from altered psyche to alcohol use believing that alterations to one's psyche (guilt, shame, and poor self-esteem) lead to alcohol consumption.

The addition of the effect from altered psyche to alcohol use resulted in a modest improvement in model fit ($\chi^2_{(1\ df)}$ difference test = 6.55, $p = .01$). The standardized residuals among the immediate health consequences' indicators were closer to an acceptable size; 7 of the 15 persisted in exceeding ±2.0 and ranged from an absolute value of 2.1 to 3.5. The largest (-3.5) was associated with *reported anger* and *reported drug use*. We speculated that those women who respond in anger refrain from taking drugs as a coping mechanism (i.e., there is a negative effect). Anger may be a different type of response than the other immediate health responses examined. For example, alterations to one's psyche and symptoms of psychopathology are internalized manifestations, whereas anger is an outward expression. Responding in anger may be a positive response and may ultimately protect women from the adverse, long-term consequences of psychopathology, alterations to the psyche, drug use, and alcohol use. Hence, we permitted an effect from anger to drug use and expected a negative effect coefficient.

We were fairly satisfied that we had added all the directed effects among the immediate health responses that were justified and that would enhance the fit of the model. The covariance between *reported alcohol use* and *reported drug use* remained underfit (standardized residual was 3.5). Obviously, the common causes of alcohol use and drug use present in the model were not sufficient to explain the correlation between these behaviours. An undetermined mechanism must account for women's propensity to turn to substances, whether drugs or alcohol, as a means of coping with an abusive relationship. Accordingly, we permitted the error terms (the ψ's) that correspond with alcohol use and drug use to covary.

With these modifications in place, we achieved a model $\chi^2_{(105\ df)}$ of 676.88 ($p < .001$) and AGFI of .94.[18] Thirty-three (17.6%) standardized residuals persisted in exceeding an absolute value of 2.0. We could no longer ignore that the CMWA was not operating optimally. Consequently, we turned our attention to improving the fit associated with this component of the model.

Revisions to the Causal Model of Wife Abuse

The large standardized residuals for several of the covariances between the indicators of the various acts of abuse and the indicators of the immediate health responses suggested that at least some of the phantom concepts, particularly physical abuse, were not operating as they should. That is, at least some of the causal indicators seemed to operate through mechanisms in addition to, or instead of, the phantom concepts as they were conceptualized. The five largest standardized residuals (-5.3 to -7.3) involved *reported being pushed, grabbed, or shoved* and its covariances with the indicators of five of the immediate health responses (all but *reported anger*). Acknowledging that such effects marked a significant departure from our initial model, we decided to incrementally add effects from being pushed, grabbed, or shoved to the immediate health responses, starting with the largest instance of poor fit.

Our first modification was the addition of an effect from being pushed, grabbed, or shoved to alcohol use, which resulted in a $\chi^2_{(1\ df)}$ difference of 29.63 ($p < .001$). The second added effect was from being pushed, grabbed, or shoved to altered psyche, which also resulted in a significant χ^2 difference test ($\chi^2_{(1\ df)} = 76.30$, $p < .001$). Third, we added an effect from being pushed to physical injury. And fourth, we added an effect from being pushed to psychopathology. These modifications resulted in $\chi^2_{(101\ df)} = 392.98$, $p < .001$, and AGFI = .96.[19] Twenty-one (11.2%) of the standardized residuals exceeded an absolute value of 2.0.

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[18] A sample of 300 cases would have produced $\chi^2_{(105\ df)} = 216.92$, $p < .001$.

[19] A sample of 300 cases would have produced $\chi^2_{(101\ df)} = 125.94$, $p = .05$.

At this point, the largest (4.0) standardized residual was associated with the covariance between *reported being beaten up* and *reported physical injury*. We were required to further concede that the causal indicators of physical abuse did not operate as a unified mechanism in their effects on the immediate health responses. That is, the various acts caused differential immediate health outcomes. Accordingly, we permitted a direct effect from being beaten up to physical injury.

We believe that, with these modifications, we obtained an acceptable fit ($\chi^2_{(100\ df)} = 295.25$, $p < .001$, AGFI = .97) (see Figure 3 for modifications made to Model 2).[20] Eighteen (9.6%) of the 188 standardized residuals exceeded ±2.0. The largest standardized residual was associated with the covariance between *reported drug use* and *reported current health status*. The observed correlation of -.16 was slightly greater than the model-implied correlation of -.12.

The LISREL Estimates for Base Model 2

The LISREL estimates for the structural component of Model 2 *The Immediate and Long-Term Health Consequences of Wife Abuse* are presented in Table 12 and the proportions of explained variance in the endogenous concepts are presented in Table 13.[21] In examining the estimated model coefficients, one quickly realizes that the effects of being pushed on physical injury, psychopathology, altered psyche, and alcohol use are negative, a seemingly inexplicable finding. Additionally, there seemed to be little congruence between several of the R^2 values and the standardized effects. For example, the R^2 for anger was 3%, yet the standardized effects of frequency and threats of harm on anger were .23 and -.19, respectively. Generally, one would expect a larger proportion of explained variance as a result of effects of this magnitude. In attempting to determine why these results occurred, we ran several "diagnostic models." Our initial hunch was that there was a collinearity problem with being pushed or severity of physical abuse and the frequency of abuse. This hunch was based, in part, on the discovery that the correlation of the estimates between the effects of being pushed on physical injury and of frequency on physical injury was -.61. We first fixed the effects from severity of physical abuse to the six immediate health consequences at zero, essentially eliminating the severity of physical abuse concept. This approach did not resolve the problem and the output was nearly identical to the revised model. We then fixed the effect from being pushed to physical injury at the magnitude determined in the previous diagnostic estimation, but changed the sign of the effect to positive.

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[20] A sample of 300 cases would have produced $\chi^2 = 94.62$, $p = .63$ and 250 cases would have produced $\chi^2 = 78.80$, $p = .94$.

[21] The covariance between the two error terms (the ψ's) associated with alcohol use and drug use implies a correlation of .09.

Figure 3: Effects Added to Base Model 2

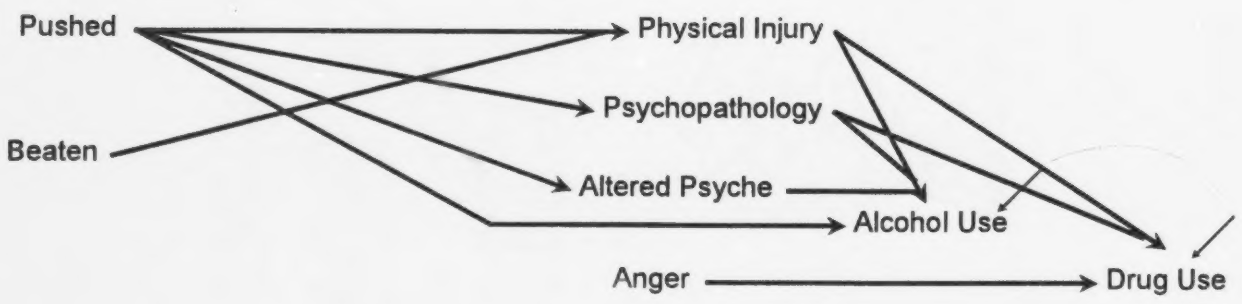
Pushed
Beaten
Physical Injury
Psychopathology
Altered Psyche
Alcohol Use
Anger
Drug Use

Table 12 The Inexplicable Structural Coefficients of Base Model 2: The Immediate and Long-Term Health Consequences of Wife Abuse

Cause	Effect	Unst.[1]	St.[2]	Fixed (f)/ Estimated (e)
Thrown	Severity of Physical Abuse	1.00	0.06	f
Pushed	"	1.00	0.08	f
Slapped	"	1.00	0.06	f
Kicked	"	2.00	0.11	f
Hit with an Object	"	3.00	0.12	f
Beaten Up	"	5.00	0.25	f
Choked	"	5.00	0.21	f
Knife or Gun Involved	"	8.00	0.29	f
Threatened	Threats of Harm	1.00	0.78	f
Knife or Gun Involved	"	0.63	0.26	f[3]
Forced Sex	Sexual Abuse	1.00	0.92	f
Jealous	Dominance or Control	1.00	0.31	f
Contact Limited	"	1.00	0.29	f
Monitored	"	1.00	0.32	f
Limited to Finances	"	1.00	0.24	f
Called Names	Emotional Abuse	1.00	0.92	f
Occurred During Pregnancy	Physical Injury	-0.05	-0.01	e
Frequency	"	0.31*	0.43*	e
Pushed	"	-1.80*	-0.47*	e
Beaten Up	"	3.37*	0.58*	e
Physical Abuse	"	0.04	0.14	e
Sexual Abuse	"	-1.05*	-0.18*	e
Occurred During Pregnancy	Psychopathology	-0.00	-0.00	e

(continued...)

(continued...)

Frequency	"	0.17*	0.49*	e
Pushed	"	-0.80*	-0.43*	e
Physical Abuse	"	0.01	0.05	e
Threats of Harm	"	0.17	0.11	e
Sexual Abuse	"	0.06	0.02	e
Dominance/Control	"	-0.03	-0.05	e
Emotional Abuse	"	0.15	0.08	e
Occurred During Pregnancy	Altered Psyche	0.08	0.03	e
Frequency	"	0.26*	0.81*	e
Pushed	"	-0.81*	-0.49*	e
Physical Abuse	"	0.01	0.06	e
Threats of Harm	"	-0.25*	-0.17*	e
Sexual Abuse	"	-0.08	-0.03	e
Dominance/Control	"	-0.02	-0.04	e
Emotional Abuse	"	0.01	0.01	e
Occurred During Pregnancy	Anger	0.00	0.00	e
Frequency	"	0.05*	0.23*	e
Physical Abuse	"	-0.01	-0.07	e
Threats of Harm	"	-0.18*	-0.19*	e
Sexual Abuse	"	0.09	0.05	e
Dominance/Control	"	-0.01	-0.04	e
Emotional Abuse	"	0.01	0.01	e
Occurred During Pregnancy	Alcohol Use	-0.08	-0.06	e
Frequency	"	0.06*	0.41*	e
Pushed	"	-0.29*	-0.36*	e
Physical Abuse	"	-0.00	-0.01	e

(continued...)

Threats of Harm	"	-0.06	-0.09	e
Sexual Abuse	"	0.07	0.05	e
Dominance/Control	"	0.04*	0.15*	e
Emotional Abuse	"	-0.01	-0.01	e
Physical Injury	"	0.01	0.03	e
Psychopathology	"	0.04*	0.10*	e
Altered Psyche	"	0.01	0.02	e
Occurred During Pregnancy	Drug Use	-0.08	-0.06	e
Frequency	"	0.02	0.13	e
Physical Abuse	"	-0.01*	-0.17*	e
Threats of Harm	"	0.01	0.01	e
Sexual Abuse	"	0.10	0.08	e
Dominance/Control	"	0.03*	0.11*	e
Emotional Abuse	"	0.03	0.03	e
Physical Injury	"	0.06*	0.28*	e
Psychopathology	"	0.04*	0.10*	e
Anger	"	-0.09*	-0.12*	e
Household Income	Current Health Status	0.10*	0.21*	e
Education	"	0.04*	0.12*	e
Age	"	-0.09*	-0.14*	e
Physical Injury	"	-0.01	-0.01	e
Psychopathology	"	-0.03	-0.03	e
Altered Psyche	"	-0.00	-0.00	e
Anger	"	0.10	0.04	e
Alcohol Use	"	0.06	0.02	e
Drug Use	"	-0.32*	-0.11*	e

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[1] Unstandardized.

[2] Standardized.

[3] Estimated in Model 1, fixed in Model 2.

*$t > 2$.

Table 13 Proportions of Explained Variance in the Latent Endogenous Concepts of Base Model 2

Variable	R^2	Fixed (f)/ Estimated (e)
Physical Abuse	.85	f
Threats of Harm	.85	f
Sexual Abuse	.85	f
Dominance/Control	.85	f
Emotional Abuse	.85	f
Physical Injury	.52	e
Psychopathology	.16	e
Altered Psyche	.21	e
Anger	.03	e
Alcohol Use	.13	e
Drug Use	.16	e
Current health status	.14	e

Interestingly, this resulted in a negative effect from frequency to physical injury. We then fixed the effect of frequency of abuse on the six immediate health consequences to zero, and re-estimated the model with pushed, shoved, and grabbed and physical abuse specified as they were in the revised model. Once again, the effects of being pushed, shoved, or grabbed on the four relevant immediate health consequences were negative in direction. Consequently, we concluded that the problem was not the result of collinearity between being pushed, grabbed, or shoved and frequency and their corresponding effects on physical injury.

Our second approach was to consider if the problem was somehow related to the case base. Recall that those women who were free of abuse were coded as missing on the intervening, immediate health consequence concepts. As such, they were eliminated from the pairwise covariance matrix and the resultant effect coefficients related to women who experienced at least one form of abuse, which made the effects of the causal indicators relative to at least one of the other acts of abuse, rather than relative to the absence of all acts. Consequently, we attempted to determine if this was the problem by estimating the covariance matrix with the non-abused women coded as zero for all the immediate health consequences (see Appendix A).

The model, without any of the added modifications, based on the new covariance matrix, seemed to fit the data better than the original, unrevised Model

2.[22] However, as we expected, there were several large standardized residuals suggesting an overall poor fit. We approached the modification of this model in the same way that we approached the modifications made to the original Model 2; that is, we added all plausible effects among the immediate health consequences, as a means of improving model fit, prior to altering the CMWA.

We incrementally added the following five effects among the immediate health consequences to the new model (all were indicated by the standardized residuals and only some had been added to the original model): (a) from anger to drug use; (b) from injury to drug use; (c) from psychopathology to alcohol use; (d) from altered psyche to alcohol use; and (e) from anger to psychopathology. We also added the covariance between the error terms for alcohol use and drug use. The effects from physical injury to alcohol use and psychopathology to drug use, added to the original model, did not appear to be necessary effects among the immediate health consequences. The 14 effects added to the CMWA included: (a) from thrown to physical injury; (b) from pushed, shoved, or grabbed to anger and to psychopathology; (c) from kicked, bit, or hit with a fist to physical injury; (d) from hit with an object to physical injury; (e) from beaten up to physical injury; (f) from knife or gun involvement to physical injury and to alcohol use; (g) from jealous to altered psyche; (h) from contact limited to psychopathology; (i) from monitored to drug use; and (j) from limited to finances to altered psyche, to alcohol use and to drug use.

Model 2, with a case base of all ever-married women and the aforementioned modifications, obtained signs of an acceptable fit ($\chi^2_{(92\ df)} = 590.60$, $p < .001$, AGFI = .99) (see Figure 4 for modifications made to the model).[23] Only 16 (8.5%) of the standardized residuals exceeded an absolute value of 2.0. However, two of the standardized residuals remained exceptionally large; the discrepancies in their corresponding observed and model-implied correlations (*reported husband as jealous* and *reported being monitored* with *reported physical injury*) were larger than we could tolerate.[24] Consequently, we added an effect from dominance or control to physical abuse suggesting that physical abuse can escalate from dominance or control.[25]

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[22] The new minimum fit function was .2123791 compared to .4155959 for the initial Model 2. (We cannot directly compare χ^2 values because the sample size varies between the two models.) With the non-abused women coded as zero for the intervening immediate health consequence concepts, the smallest number contributing to a covariance calculation was 4,114.

[23] A sample of 500 women would have resulted in $\chi^2 = 71.65$, $p = .94$ and 750 cases would have resulted in $\chi^2 = 107.55$, $p = .13$.

[24] The observed correlation between *reported husband as jealous* and *reported physical injury* was .47 and the model-implied correlation was .39. The observed correlation between *reported being monitored* and *reported physical injury* was .46 and the model-implied correlation was .34.

[25] The model without this effect had two coefficient estimates that differed from those that resulted with the effect from dominance or control to physical abuse present: the effect from frequency to

(continued...)

The addition of the effect from dominance or control to physical abuse resulted in a significant χ^2 test (χ^2 difference = 127.98, $p < .001$).[26] Most importantly, only 11 (5.9%) standardized residuals exceeded an absolute value of 2.0. The largest standardized residual (2.9) was associated with the covariance between *reported being monitored* and *reported physical injury*. The observed correlation of .46 was now only slightly larger than the model-implied correlation of .41.

The LISREL Estimates for Final Model 2

The coefficient estimates for the latter model were considerably more reasonable than those initially estimated for Model 2 (see Table 14 for LISREL estimates).[27] And, substantially more variance in the immediate health consequence concepts was reportedly explained by the LISREL program (see Table 15).

Table 14 The Structural Coefficients of Final Model 2: The Immediate and Long-Term Health Consequences of Wife Abuse (with all ever-married women)

Cause	Effect	Unst.[1]	St.[2]	Fixed (f)/ Estimated (e)
Thrown	Severity of Physical Abuse	1.00	0.04	f
Pushed	"	1.00	0.05	f
Slapped	"	1.00	0.04	f
Kicked	"	2.00	0.07	f
Hit with an Object	"	3.00	0.08	f
Beaten Up	"	5.00	0.17	f
Choked	"	5.00	0.14	f

(continued...)

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[25](...continued)
physical injury was .02 (standardized effect was .05) and significant. Second, the effect from dominance or control to alcohol use was .02 (standardized effect was .14) and significant. Otherwise, the model estimates were essentially the same, and all conclusions drawn from the estimates were comparable.

[26] The variance in the error term for the phantom concept, physical abuse, was adjusted following the introduction of an additional source of variance in order to restrict the amount of variance arising from indeterminate sources to equal 15% of the variance in the concept.

[27] The covariance between the two error terms (the ψ's) associated with alcohol use and drug use implies a correlation of .09, the same magnitude estimated in the base Model 2.

(continued...)

Knife or Gun Involved	"	8.00	0.19	f
Dominance/Control	"	2.95*	0.43*	e
Threatened	Threats of Harm	1.00	0.78	f
Knife or Gun Involved	"	0.63	0.26	f[3]
Forced Sex	Sexual Abuse	1.00	0.92	f
Jealous	Dominance or Control	1.00	0.31	f
Contact Limited	"	1.00	0.29	f
Monitored	"	1.00	0.32	f
Limited to Finances	"	1.00	0.23	f
Called Names	Emotional Abuse	1.00	0.92	f
Occurred During Pregnancy	Physical Injury	0.25*	0.07*	e
Frequency	"	-0.01	-0.02	e
Thrown	"	0.23*	0.08*	e
Kicked	"	0.44*	0.15*	e
Hit with an Object	"	0.23*	0.06*	e
Beaten Up	"	0.89*	0.29*	e
Knife or Gun Involved	"	-0.37*	-0.09*	e
Physical Abuse	"	0.04*	0.40*	e
Sexual Abuse	"	-0.21*	-0.07*	e
Occurred During Pregnancy	Psychopathology	0.11*	0.06*	e
Frequency	"	0.03*	0.13*	e
Pushed	"	0.25*	0.23*	e
Contact Limited	"	-0.24*	-0.18*	e
Physical Abuse	"	-0.01*	-0.15*	e
Threats of Harm	"	0.17*	0.19*	e
Sexual Abuse	"	0.12*	0.07*	e

(continued...)

Dominance/Control	"	0.15*	0.41*	e
Emotional Abuse	"	0.20*	0.18*	e
Anger	"	-0.14*	-0.08*	e
Occurred During Pregnancy	Altered Psyche	0.11*	0.08*	e
Frequency	"	0.05*	0.32*	e
Jealous	"	-0.16*	-0.18*	e
Limited to Finances	"	-0.17*	-0.14*	e
Physical Abuse	"	0.00	0.06	e
Threats of Harm	"	-0.04	-0.06	e
Sexual Abuse	"	0.02	0.02	e
Dominance/Control	"	0.10*	0.34*	e
Emotional Abuse	"	0.08*	0.09*	e
Occurred During Pregnancy	Anger	0.01	0.01	e
Frequency	"	0.02*	0.17*	e
Pushed	"	0.19*	0.32*	e
Physical Abuse	"	-0.01*	-0.33*	e
Threats of Harm	"	0.00	0.00	e
Sexual Abuse	"	0.03	0.04	e
Dominance/Control	"	0.06*	0.29*	e
Emotional Abuse	"	0.06*	0.11*	e
Occurred During Pregnancy	Alcohol Use	-0.03*	-0.04*	e
Frequency	"	0.01*	0.07*	e
Knife or Gun Involved	"	-0.15*	-0.17*	e
Limited to Finances	"	0.04*	0.08*	e
Physical Abuse	"	0.01*	0.25*	e
Threats of Harm	"	0.00	0.00	e

(continued...)

Sexual Abuse	"	0.04*	0.07*	e
Dominance/Control	"	0.00	0.03	e
Emotional Abuse	"	0.00	0.01	e
Psychopathology	"	0.05*	0.13*	e
Altered Psyche	"	0.03*	0.07*	e
Occurred During Pregnancy	Drug Use	-0.01	-0.02	e
Frequency	"	0.01*	0.15*	e
Monitored	"	0.05*	0.12*	e
Limited to Finances	"	0.10*	0.17*	e
Physical Abuse	"	-0.00	-0.11	e
Threats of Harm	"	0.03*	0.09*	e
Sexual Abuse	"	0.03*	0.06*	e
Dominance/Control	"	0.01	0.04	e
Emotional Abuse	"	0.04*	0.09*	e
Physical Injury	"	0.04*	0.20*	e
Anger	"	-0.11*	-0.16*	e
Household Income	Current Health Status	0.10*	0.21*	e
Education	"	0.05*	0.12*	e
Age	"	-0.10*	-0.15*	e
Physical Injury	"	-0.02	-0.02	e
Psychopathology	"	-0.11*	-0.05*	e
Altered Psyche	"	-0.02	-0.01	e
Anger	"	-0.01	-0.00	e
Alcohol Use	"	0.04	0.01	e
Drug Use	"	-0.40*	-0.07*	e

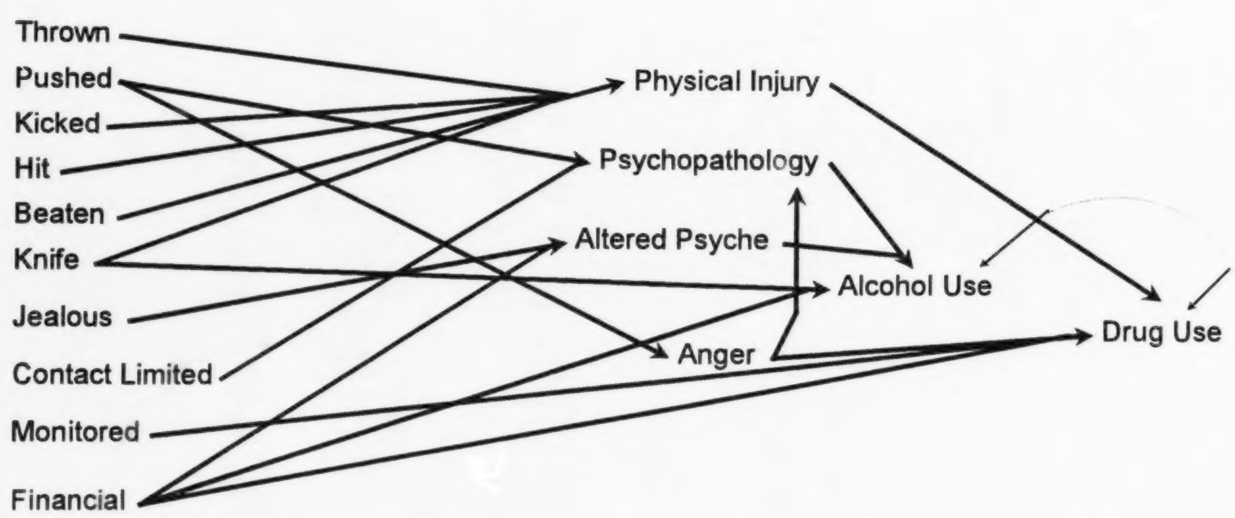
[1] Unstandardized.

[2] Standardized.

[3] Estimated in Model 1, fixed in Model 2.

*$t > 2$.

Figure 4: Effects Added to Final Model 2 (with all ever-married women)


Thrown
Pushed
Kicked
Hit
Beaten
Knife
Jealous
Contact Limited
Monitored
Financial
Physical Injury
Psychopathology
Altered Psyche
Alcohol Use
Anger
Drug Use

Note. Added effect from Dominance/Control to Physical Abuse not shown.

Table 15 Proportions of Explained Variance in the Latent Endogenous Concepts of Final Model 2 (with all ever-married women)

Variable	R^2	Fixed (f)/ Estimated (e)
Physical Abuse	.85	f
Threats of Harm	.85	f
Sexual Abuse	.85	f
Dominance/Control	.85	f
Emotional Abuse	.85	f
Physical Injury	.66	e
Psychopathology	.54	e
Altered Psyche	.28	e
Anger	.29	e
Alcohol Use	.21	e
Drug Use	.29	e
Current health status	.15	e

Although abused women suffer from a wide range of health problems as an immediate result of the abuse they experience, the only responses that affect their overall, current health status are the development of symptoms of psychopathology and the use of drugs or medications as a coping mechanism. For every standard deviation increase in psychopathology, there is a corresponding .05 standard deviation decrease in a woman's current health status. And, if a woman responds to abuse by using drugs or medications to cope, her current health status is reduced by almost half a point (-.40 unstandardized).[28]

We find that women are at greater risk of developing psychopathology if they are abused while they are pregnant. Additionally, they will develop symptoms in response to any exposure to threats of harm, sexual abuse, and emotional abuse. Exposure to dominance or control, particularly if the husband is jealous, monitors his partner's whereabouts, and restricts her access to the family's finances, also leads to psychopathology. Interestingly, the development of psychopathology has an inverse relationship with the severity of physical abuse. If a woman is pushed, shoved or grabbed, and experiences no other acts of physical abuse, she is likely to develop psychopathology. However, if the physical abuse escalates in severity, it appears to have a protective effect against the development of psychopathology. Perhaps, as the abuse becomes increasingly severe, women are motivated to seek assistance, which prevents psychopathologic problems. This hypothesis will be tested in the following model estimation (see Chapter 6). Finally, women who respond in anger to the abuse to which they are exposed are unlikely to develop psychopathology, or will develop less severe psychopathology (the presence of anger reduces a woman's psychopathology score by .14 units). Again, it may be the case that anger motivates women who are abused to take action in order to ensure that the abuse will not recur. As abuse increases in frequency, regardless of the severity of the abuse, the psychopathology that women develop increases in severity (as manifested by the number of symptoms reported). A one standard deviation increase in the frequency of the abuse results in a .13 standard deviation increase in psychopathology.

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[28] Note that the discussion alternates between interpretations of standardized and unstandardized effects. Although standardized effects are usually most helpful, in the case of dichotomous variables, the meaning of a standard deviation is abstruse. Consequently, we have discussed the effects of the dichotomous variables in terms of their real units (i.e., presence or absence of the condition or state).

Exposure to threats of harm, sexual abuse, and emotional abuse leads to the use of drugs or medications as coping mechanisms. Exposure to dominance or control can also lead to the use of drugs or medications, particularly if the woman's whereabouts are monitored and she has limited, or no, access to the family's finances and financial matters. As we would expect, the severity of the physical injuries sustained determines the likelihood of using drugs or medications. A one standard deviation increase in the severity of physical injury results in a .20 standard deviation increase in the use of drugs. Additionally, the frequency of the abuse is one of the determinants of whether a woman will use drugs or medications to cope. A standard deviation increase in the frequency of the abuse results in a .15 standard deviation increase in drug use. Once again, the development of anger has a protective effect: women who respond in anger score .11 units lower on the drug use concept than women who do not.

The following discussion highlights several components of the estimated model, including the CMWA, the immediate health responses of particular types of abuse, and the roles that abuse during pregnancy and the frequency of abuse play in determining women's responses.[29]

The Causal Model of Wife Abuse

Overall, we were disappointed with how the CMWA for the causal indicators of physical abuse and dominance or control operated. First, the causal indicators, being thrown, being pushed, shoved, or grabbed, being kicked, bit, or hit with a fist, being hit with an object, being beaten up, and knife or gun involvement were required to have additional direct effects on some of the immediate health responses, beyond the effects that were conceptualized to operate through the unifying, phantom concept, severity of physical abuse. For example, in relation to the severity of the physical injury incurred, the weights suggested by Straus (1990b) may simply be incorrect. The total unstandardized effects of three of the causal indicators of physical abuse, being pushed, grabbed, or shoved, being slapped, and being choked, are 0.04, 0.04, and 0.20, respectively (Straus's weight times the effect of physical abuse on physical injury (0.04), consequently they are directly proportional to Straus's weights: the severity of being choked is five times greater than that of being pushed, grabbed, or shoved). However, the total unstandardized effect of having something thrown is 1.00(0.04) + 0.23, or a 0.27 unit increase on the physical injury severity scale. Similarly, the total unstandardized effects of being kicked, bit, or hit with a fist, being hit with an object, being beaten up, and knife or gun involvement, on physical injury, are .52, .35, 1.09, and -0.05, respectively.

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[29] The reader may find it helpful to trace the effects in Figure 2 as you read the description of the various model segments. If undertaken, recall that 20 modifications were made to the model, or superimpose Figure 4 on Figure 2.

First, why does knife or gun involvement have a total effect on physical injury that is negative in direction? We believe that we cannot reliably estimate the effect of knife or gun involvement in that the observed correlation between the use of a knife or gun and physical injury is likely deflated. First, Statistics Canada did not differentiate between threats of knife or gun use and actual knife or gun use. Of the women who reported that they were exposed to this type of behaviour, only two reported physical injuries, which were relatively minor in nature. The vast majority must have been threatened with knives or guns, but not stabbed or shot. Second, the occurrence of actual use is very rare. Third, and most important, the sampling of cases was restricted to those women who were not killed (a likely result of being shot or stabbed), or who were not institutionalized as a result of their injuries (again, a likely, even if temporary, result of being shot or stabbed). Consequently, the severity of physical injury scale is limited to those women who were attacked, survived, and not currently institutionalized.

For the remaining seven causal indicators of physical abuse, we find that the magnitude of the effects, as well as their relative weightings, are markedly different from those postulated by Straus (1990b) (see Table 16). However, the problem with our conceptualization of physical abuse goes beyond a misspecification of the relative severity of the causal indicators. There is additional evidence that the causal indicators have differential effects on the various immediate health consequences and do not operate as a unified mechanism through physical abuse. Specifically, note that two additional effects were required from the causal indicators of physical abuse: being pushed, shoved, or grabbed on psychopathology and anger. In examining the implications of these added effects, we find that Straus's severity weights work very well in relation to psychopathology and anger. However, the act of being pushed, shoved, or grabbed has unique effects, which detract from our claim that there is a common pathway through physical abuse.

Our claim that the four causal indicators of dominance or control result in a composite concept was also refuted. Each of the causal indicators required at least one additional direct effect to an immediate health consequence in order to accommodate its differential or unique effect. For example, in relation to altered psyche, as hypothesized, we find that having one's contact with relatives and friends limited and having one's whereabouts monitored are equally likely to result in alterations to one's psyche (total effect: 1.00 x 0.10 = 0.10, unstandardized). However, the effects of having a jealous husband and one's access to the family's finances limited have very different effects on altered psyche ((1.00 x 0.10) - 0.16 = -0.06 and (1.00 x 0.10) - 0.17 = -0.07, respectively). Indeed, their effects are opposite in direction (they may not be statistically significant).

In summary, the CMWA segment of the model failed to explain the empirical data. The need for additional direct effects from several of the causal indicators to the immediate health responses directly refutes our conceptualization. Additionally, the presence of these effects obfuscates our interpretations. Most importantly, the reader should be cautioned that, if a causal indicator directly affects an immediate health response, in addition to affecting it through a phantom concept, there are very specific restrictions on the possible interpretations of that direct effect. Most particularly, the possible interpretations of the direct effects from the causal indicators must not invoke mechanisms that in any way include or touch upon what is meant by the phantom concept. For example, the causal indicator, having something thrown has a direct effect on physical injury as well as the originally specified indirect effect through severity of physical abuse, based on Straus's (1990b) conceptualization of severity. The added direct effect suggests that having something thrown leads to physical injury for reasons other than the severity of the physically abusive act, as conceptualized by Straus.

Table 16 Straus's Severity Weights Compared to the Estimated Effects of the Causal Indicators of Physical Abuse on Physical Injury

Causal Indicator	Straus's Severity Weight	Relative Total Effect[1]
Thrown	1.00	6.75
Pushed	1.00	1.00
Slapped	1.00	1.00
Kicked	2.00	13.00
Hit with an Object	3.00	8.75
Beaten Up	5.00	26.25
Choked	5.00	5.00

[1] The total unstandardized effect of the causal indicator on physical injury divided by the effect of physical abuse on physical injury (0.04), which is the same as using pushed or slapped as 1.00.

The Immediate Health Consequences of Wife Abuse

The model provides significant explanatory power in relation to the severity of physical injury sustained as a consequence of abuse (66% of the variance is explained). The severity of the physical injuries sustained is strongly determined by the severity of the physical abuse experienced. In particular, the severity of the injuries are directly affected by whether a woman is beaten up or not. The frequency of the abuse does not determine the severity of the injury. And, exposure to sexual abuse does not lead to increasingly severe injuries. Indeed, women who are sexually abused, in the absence of physical abuse, are unlikely to sustain severe injuries. However, being beaten while pregnant seems to compound the severity of the physical injuries sustained.

Psychopathology does not usually develop as the direct result of physical abuse, unless the only act of physical abuse is being pushed, shoved, or grabbed. However, the problem does occur as the frequency of the abuse increases and if it occurs while a woman is pregnant. The strongest determinant of psychopathology is exposure to dominance or control. For every standard deviation increase in exposure to dominance or control there is a corresponding .41 standard deviation increase in psychopathology.[30] Similarly, exposure to threats of harm, sexual abuse, and emotional abuse lead to psychopathology (standardized effects are .19, .07, and .18, respectively). Interestingly, women who respond in anger to the abuse they experience are likely to manifest slightly fewer symptoms of psychopathology. Whereas, a one standard deviation increase in dominance or control, with no expression of anger, leads to a .41 standard deviation increase in psychopathology, a one standard deviation increase in dominance or control, with the development of anger, results in a .38 standard deviation increase in psychopathology.[31]

Alterations to one's psyche result when women are emotionally abused and when they are exposed to either or both of two of the acts of dominance or control: having their contact with friends and relatives limited and having their whereabouts monitored. The frequency of the physical or sexual abuse to which they may be exposed is a strong determinant of alterations to the psyche. For every standard deviation increase in frequency, there is a corresponding .32 standard deviation increase in altered psyche. Additionally, if a woman is abused while she is pregnant, she is more likely to experience feelings of guilt, shame, and poor self-esteem.

Anger was the singularly most common response to abuse (approximately one-third of abused women reported being angry as a result of the abuse they experienced). Such anger is determined by the frequency of the physical and sexual abuse to which a woman is subjected, as well as whether she is emotionally

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[30] Note that the added direct effect from contact limited to psychopathology means that the sole act of limiting a woman's contact with her family and friends does not lead to psychopathology. However, the acts of jealousy, monitoring a woman's whereabouts, and limiting her access to the family's finances lead to psychopathology.

[31] For this example we have ignored the direct effect of contact limited on psychopathology. The standardized total effect of dominance on psychopathology, through anger was calculated as follows. The unstandardized total effect of .15 + (.06 x -.14) = .14. We standardized this total effect by multiplying it by

$$\frac{\sqrt{Variance\ (Dominance\ )}}{\sqrt{Variance\ (Psychopathology\ )}}.$$

abused and exposed to acts of dominance or control. For every standard deviation increase in dominance or control, there is a corresponding .29 standard deviation increase in anger.

Approximately one in seven women who are sexually or physically abused responds by using alcohol as a coping mechanism. From the model, we learn that women who are most frequently abused, those who are most severely abused, and those who are sexually abused are slightly more likely to turn to alcohol.[32] The forms of abuse that are psychological in nature, emotional abuse and dominance or control, do not, for the most part, lead to alcohol use. However, the act of limiting a woman's access to the family's finances may be a determinant of alcohol use. In addition to being determined by some of the forms of abuse, it appears that alcohol use is likely to result from some of the other immediate health consequences of abuse. In particular, women who develop psychopathology and alterations to their psyches are more likely to rely on alcohol. For every standard deviation increase in psychopathology, there is a corresponding .13 standard deviation increase in alcohol use. Similarly, a standard deviation increase in altered psyche leads to a .07 standard deviation increase in alcohol use. As we would expect, abuse during pregnancy has a protective effect. Women who are pregnant are less likely to consume alcohol than women who are not pregnant.

Women tend to use drugs or medications in response to the threats of harm, sexual abuse, and emotional abuse to which they are exposed. Although the effect from the phantom concept, dominance or control, is not statistically significant, the effect from having limited access to the family's finances is significantly related to drug or medication use. The severity of the physical abuse, in and of itself, is not a determinant of drug use. However, as the abuse increases in frequency, and as the physical injuries that result increase in severity, drug or medication use is more likely to result. For every standard deviation increase in the severity of the physical injury sustained, holding all other variables untouched, there is a corresponding .20 standard deviation increase in drug use. Another very plausible finding is that women who respond in anger are unlikely to turn to drugs or medications to cope with their situations. In isolation, this is not a strong effect (experiencing anger reduces a woman's drug use score by .11). However, in the context of the model, anger's negative, or protective, effect on drug use, as well as its protective effect on psychopathology, becomes increasingly important. Specifically, women who respond with anger and who avoid using drugs because of that anger gain .04 points on the health status scale. Similarly, those who experience less psychopathology because of their anger gain .02 points on the health status scale.[33]

Having abuse occur during pregnancy influences a woman's current health status because the experience is likely to compound the psychopathology experienced, as well as lead to more severe injury, and alterations to the psyche. However, abuse during pregnancy protects a woman from consuming alcohol as a coping mechanism. The frequency of the abuse also determines a woman's long-term health status because as it increases so do the symptoms of psychopathology and the likelihood of using drugs or medications. Increasing frequency is also associated with alterations to one's psyche and alcohol use.

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[32] Interestingly, the involvement of a knife or gun does not lead to alcohol use.

[33] The total unstandardized effect of anger on current health status equals the direct effect of anger on current health status (-.01), plus the indirect effect of anger on current health status through drug use (-.11)(-.40), plus the indirect effect of anger on current health status through psychopathology (-.14)(-.11), or .05.

When we control for the effects of household income, education, and age, known determinants of women's health status, we find that women who are abused and who develop psychopathology or who use drugs or medications to cope with that abuse have poorer health than women free of abuse. Such responses are determined by the frequency with which the abuse occurs, whether it occurs during pregnancy, and the nature of the abuse (whether a woman is exposed to threats of harm, sexual abuse, dominance or control, and emotional abuse), as well as the severity of the physical injuries that are sustained as a result of physical abuse.

Chapter 6

The Effects of Societal Responses to Wife Abuse on the Health Status of Abused Women

The Model

This chapter provides the details related to the third in the series of models examining the consequences of wife abuse. In the previous two chapters, the immediate and long-term health consequences of wife abuse were considered. Here, we consider the effectiveness and determinants of various societal responses that may be enacted when situations of abuse occur.

The third model, Model 3, depicted in Figure 5, is designed to examine the effectiveness of various societal responses or interventions in moderating the health consequences of abuse. The model also provides an opportunity to examine some possible determinants of abused women's help seeking behaviours, particularly those concerned with the nature of the abuse, represented by the exogenous variables, and the immediate health consequences of abuse. The responses or interventions included in the model are: whether abused women seek the assistance of physicians or nurses; informal support mechanisms, including family, friends, and neighbours; ministers, priests, rabbis, or other clergy; shelters; counselling services; and the police.

The previous model, Model 2, demonstrated that the nature of the abuse experienced results in varying immediate health responses which, in turn, may affect women's long-term health status. These effects persist in the current model.[1]

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[1] The 21 modifications made to Model 2 are included in Model 3 and were left free to be estimated: (a) the added effect of having something thrown on physical injury, (b) the added effects of being pushed, shoved, or grabbed on psychopathology and anger, (c) the added effect of being kicked, bit, or hit with a fist on physical injury, (d) the added effect of being hit with an object on physical injury, (e) the added effect of being beaten up on physical injury, (f) the added effects of knife or gun involvement on physical injury and alcohol use, (g) the added effect of husband's jealousy on altered psyche, (h) the added effect of having one's contact limited on psychopathology, (i) the added effect of being monitored on drug use, (j) the added effects of limited to finances on altered psyche, alcohol use, and drug use, (k) the added effect of physical injury on drug use, (l) the added effect of psychopathology on alcohol use, (m) the added effect of altered psyche on alcohol use, (n) the added

(continued...)

Additionally, the nature of the abuse is postulated to determine whether various sources of help are exercised. For example, whether a woman is abused during a pregnancy or experiences sexual abuse may determine the sources of help, if any, that she employs.

Some of the exogenous variables cannot influence the intervening variables concerning societal interventions. Specifically, the socio-demographic variables, household income, education, and age are not postulated to affect whether a woman obtains aid from the various sources of support because they are measures of women's current socio-economic status and age, which may differ from what they were at the time of the abuse, and their presence would violate the correct time order of events.[2] Additionally, the exercise of dominance or control and emotional abuse are not postulated to lead to police involvement. Although harassment is a crime, these concepts, as they are conceptualized here, are not criminal acts. Lastly, the immediate health responses, with one exception, are postulated to influence whether a woman accesses the various sources of help. For example, the severity of a woman's injuries ought to, at least in part, determine if physicians or nurses become involved and psychopathology determines if counsellors become involved. The exception is related to the causal relationship between physician/ nurse support and drug use. Rather than specifying that the immediate health response, drug use, leads to physician/nurse support, the model specifies that physician/nurse support leads to drug use. Specifically, it is postulated that, in order to obtain drugs or medications to use as coping mechanisms, women usually must come into contact with physicians who prescribe or recommend certain drugs. However, the model permits women to use drugs or medications, without physician/nurse contact, because all of the forms of abuse, the phantom concepts, lead directly to drug use. Additionally, physical abuse and sexual abuse can indirectly lead to drug use, in the absence of physician/nurse support, by causing injuries, which lead to drug use.

In the previous model, it was found that exposure to physical abuse, threats of harm, sexual abuse, dominance or control, and sexual abuse, as well as the frequency of the abuse, and whether it occurred during pregnancy have long-term consequences on women's health status, particularly because these factors lead to psychopathology or a reliance on drugs or medications as a coping mechanism.

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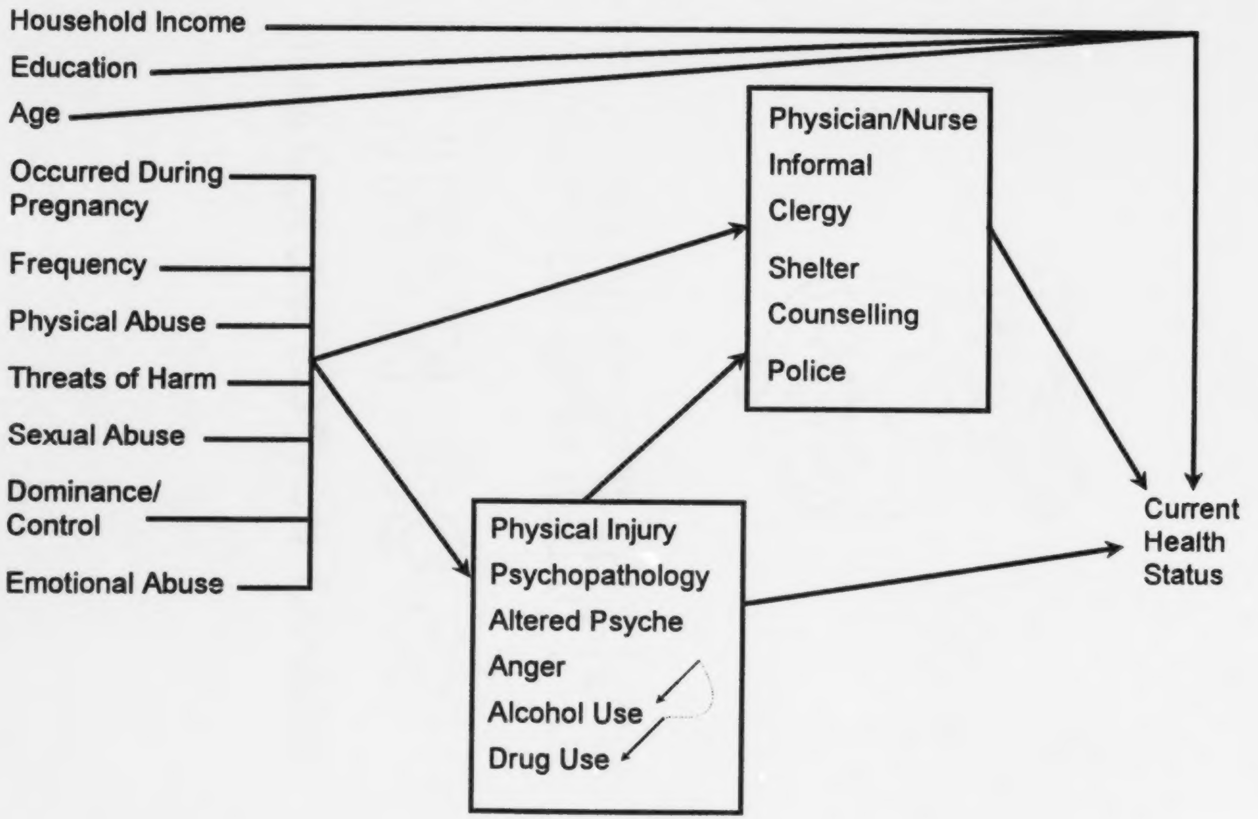
[1](...continued)
effects of anger on psychopathology and drug use, and (o) the covariance of the error terms associated with the concepts, alcohol use and drug use. The last modification implemented, the effect from dominance or control to physical abuse was included in the model and fixed at the value estimated in Model 2.

[2] If we had believed that there was considerable stability in socio-economic status over time, we may not have been too concerned about the time order issue. However, there is good reason to believe that the socio-economic status of abused women is markedly unstable in that their household incomes are likely to shrink once they leave the abusive relationship. Additionally, their employment status may change as a consequence of the dissolution of the marital relationship.

Figure 5: Model 3: The Effectiveness of Societal Responses in Moderating the Health Consequences of Abuse


Household Income
Education
Age
Occurred During Pregnancy
Frequency
Physical Abuse
Threats of Harm
Sexual Abuse
Dominance/ Control
Emotional Abuse
Physician/Nurse
Informal
Clergy
Shelter
Counselling
Police
Physical Injury
Psychopathology
Altered Psyche
Anger
Alcohol Use
Drug Use
Current Health Status

Note. Unless otherwise stated, an arrow indicates that all variables within a box influence each variable within the box to which the arrow is directed. The 20 structural effects added to Model 2 (see Figure 4) are not shown here. Consistent with Models 1 & 2, Physical Injury is not caused by Threats of Harm, Dominance/Control, or Emotional Abuse. Dominance/Control and Emotional Abuse do not cause Police Support. Drug Use does not cause Physician/Nurse Support, rather Physician/Nurse Support causes Drug Use.

The current model determines whether these adverse effects are moderated by the societal responses that are available to abused women. Finally, the societal responses are not initially causally connected to one another. However, such effects are plausible and were added to the model as it was modified.

The Measurement Structure

Once again, the Causal Model of Wife Abuse (CMWA) comprises a segment of the model. The specification of the CMWA is consistent with that described in the previous chapter—the causal indicators' effects are specified as they were in the final, modified Model 2. The immediate health consequences are measured with the indicators described in the previous chapter. The following discussion outlines the indicators and measurement reliability relevant to the newly introduced intervening variables, the sources of societal intervention.

The Indicators

A second set of intervening variables, six potential sources of help, are examined in the third model.[3] The concepts, their corresponding indicators, the wording of the survey questions, and the coding employed are as follows:

(a) *Physician/nurse support* is measured by an indicator, *reported physician/nurse support* (y28) composed of responses to two questions: (i) "Did you (ever) see a doctor or nurse for your injuries?" [DVW8] and (ii) "Did you ever talk to anyone about what happened, such as... Doctor?" [W12C]. The indicator is dichotomous with 1 = positive and 0 = negative (women who did not experience abuse are coded as negative).

(b) *Informal support* is measured by an indicator, *reported informal support* (y29) composed of the responses to: "Did you ever talk to anyone about what happened, such as... family?" [W12A] "Friend/neighbour?" [W12B] and "Did you ever stay anywhere else? If yes, where did you stay?" If friends, neighbours, or relatives were mentioned [W23B], the indicator is coded 1 = positive. All other responses are coded 0 = negative.

(c) *Clergy support* is measured by a dichotomous variable, *reported clergy support* (y30) coded 1 = positive if the respondents answered affirmatively to the question, "Did you ever talk to anyone about what happened, such as...minister, priest or clergy?" [W12D]. All other responses are coded 0 = negative.

(d) *Shelter support* is measured by an indicator, *reported shelter support* (y31) compiled from the questions, "Did you ever contact any of the following services for help? Shelter or transition house?" [W13A] and "Did you ever stay at a transition house or a shelter?" [W22]. Affirmative answers are coded 1 = positive; all others are coded 0 = negative.

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[3] All mnemonics and variable labels place in [ ] brackets refer to those found in the Statistics Canada VAWS data set.

(e) *Counselling support* is measured by an indicator, *reported counselling support* (y32) derived from the responses to "Did you ever contact any of the following services for help?" including: "Crisis centre/crisis line?" [W13B] "Another counsellor?" [W13C] "Women's centre?" [W13D] "Community/family centre?" [W13E]. Responses are coded 1 = positive; 0 = negative.

(f) *Police support* is measured as a dichotomous variable, *reported police support* (y33) based on the responses to one question. If the respondents answered affirmatively to the question, "Did the police ever find out about an (the) incident?" [W26] they are coded 1 = positive, otherwise they are coded 0 = negative.

The Measurement Error

Each concept is scaled to correspond with its indicator with the specification of the value 1.0 as the loading. The concepts are each adjusted for a proportion of measurement unreliability in their corresponding indicators. The rate of measurement unreliability in the newly introduced intervening variables is specified to be 5% in order to accommodate any possible errors associated with coding problems, honest forgetting, or social desirability response sets. The previous adjustments to all other variables in the model, including the errors associated with the phantom concepts, are maintained.

The Help-Seeking Behaviour of Abused Women

The following rates are based on the responses of 2,019 women who completed detailed reports of the abuse they had experienced within their current or former marital relationships. These reports represent 2,801,060 marital or common-law relationships, either current or former, in which physical or sexual abuse occurred or in which threats of harm were made.[4] The informal support of family members, friends and neighbours is the most common source of help for abused women (see Table 17). Almost three-quarters of abused women (72.1%; 95% CI: 66.5%, 77.7%) discussed their abusive relationships with friends, neighbours, or relatives. The second most common source of help was that offered by physicians or nurses. Almost one-third (31.1%; 95% CI: 25.0%, 37.2%) of ever-married women who experienced abuse within their relationships discussed their problems with physicians or nurses or were seen by these health professionals because of the injuries they incurred. In approximately one-quarter of the cases (25.9%; 95% CI: 20.6%, 31.2%), the women who were abused believed that the police were aware of the situation. The support offered by counselling services, women's shelters, and the clergy was relatively rarely utilized by abused women.

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[4] All estimates are weighted with the incident weighting factor accounting for the many forms of over- and under-representation reflected in the survey design. One woman may account for two abusive relationships, both a current and a former relationship.

The majority of abused women, slightly more than one-half (56.2%; 95% CI: 49.6%, 62.8%), did not seek any help or depended upon the support offered by one source. And, of those who sought help from one source alone, 87.2% (95% CI: 81.6%, 92.8%) turned to relatives, friends, or neighbours.

Table 17 Rates of Utilization of Various Sources of Help in Ever-Married Women who Experienced Abuse[1]

Help Sought	Percentage (%)	95% Confidence Intervals
Physician/Nurse Support	31.1%	25.0%, 37.2%
Informal Support	72.1%	66.5%, 77.7%
Clergy Support	7.2%[2]	4.0%, 10.4%[2]
Shelter Support	8.4%[2]	5.2%, 11.6%[2]
Counselling Support	20.5%	15.2%, 25.8%
Police Support	25.9%	20.6%, 31.2%

[1] Based on the reports of 2,019 respondents representing 2,801,060 relationships.

[2] Caution is advised because of the high sampling variability associated with this estimate.

The Covariance Matrix for the Model

The variance/covariance matrix was calculated on the first half data set of ever-married women, and pairwise deletion of missing cases was used (see Appendix A). The number of cases contributing to a covariance calculation is the same as that employed in Model 2 and ranged from 4,114 to 6,191 women. The smallest number of cases contributing to the calculation of any single covariance was specified as the sample size for the LISREL program ($n = 4{,}114$).

Modifications Made to the Model

Model 3 failed to fit the data ($\chi^2_{(186\ df)} = 3{,}040.87$, $p < .001$; AGFI = .94).[5] Of the 371 meaningful standardized residuals, 62 (16.7%) exceeded an absolute value of 2.0 (2.0 standard deviations away from a perfect fit).[6] The largest standardized residual (8.1) concerned the covariance between *reported physician/nurse support* and *reported clergy support*. The largest modification index among the structural effects (as opposed to the measurement effects) (766.0), suggested the need for an effect from being pushed, grabbed, or shoved to informal support.[7] These diagnostics point to two areas of misfit within the model: once again there is evidence that the phantom concepts, severity of physical abuse and dominance or control, are not operating as unified mechanisms in their determination of the various sources of support, and there is evidence that there are causal relationships among the sources of support (i.e., some sources of support lead to other sources of support).

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[5] A sample of 300 cases would have produced $\chi^2 = 221.06$, $p = .04$ and 500 cases would have produced $\chi^2 = 368.93$, $p < .001$.

[6] Although 33 indicators result in a 561 element variance/covariance matrix, 190 elements (the covariances among the exogenous variables) were fixed to equal their observed values. Accordingly, their covariances were perfectly fit and the corresponding standardized residuals were zero.

The failure of the concept severity of physical abuse is comparable to the failure of the CMWA noted in Chapter 5. Once again there is evidence that the causal indicators of severity of physical abuse (and dominance or control), with their respective weightings, do not culminate in a single entity that leads to particular consequences. In this instance, the concept, severity of physical abuse cannot account for the different sources of intervention that are enacted. Rather, there is good evidence that additional effects from specific causal indicators to some of the sources of support are required, suggesting that there are differential consequences to particular acts of physical abuse and dominance or control both in terms of the immediate health responses of abused women and in terms of the sources of support contacted.

Our first modification was to add an effect from being pushed, grabbed, or shoved to informal support, which markedly improved the fit of the model ($\chi^2_{(185\ df)}$ = 2,188.48, $p < .001$, AGFI = .96.[8] Fifty-five (14.8%) standardized residuals persisted in exceeding an absolute value of 2.0. They suggested that direct effects were required from being choked to clergy support and from knife or gun involvement to counselling support. These two effects were added to the next model estimation.

With effects from being choked to clergy support and from knife or gun involvement to counselling support in place, the model achieved $\chi^2_{(183\ df)} = 1{,}999.44$, $p < .001$, AGFI = .96.[9] Fifty-three (14.3%) standardized residuals exceeded ± 2.0. The next modification to the model included an effect from being monitored to informal support, which resulted in $\chi^2_{(182\ df)} = 1{,}841.46$, $p < .001$, AGFI = .96.[10] Two standardized residuals remained very large: *reported physician/nurse support* and *reported clergy support* (7.0) and *reported clergy support* and *reported shelter support* (-8.4). The model's only source of covariance among these observed covariate pairs' corresponding concepts was from that which arises from their common causes (i.e., the immediate health consequences and the various forms of abuse). We speculated that when clergy members are approached by women who have been abused, they are likely to refer them to health professionals and to deter them from utilizing the services of shelters by discouraging them from breaking up the "family home."

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[7] The standardized residual for *reported being pushed, shoved, or grabbed* and *reported informal support* was 7.8.

[8] A sample of 300 cases would have produced $\chi^2 = 159.09$, $p = .92$ and 500 cases would have produced $\chi^2 = 265.51$, $p < .001$.

[9] A sample of 400 cases would have produced $\chi^2 = 193.96$, $p = .28$ and 500 cases would have produced $\chi^2 = 242.58$, $p = .002$.

[10] A sample of 400 cases would have produced $\chi^2 = 178.64$, $p = .56$ and 500 cases would have produced $\chi^2 = 223.41$ $p = .020$.

With the addition of the two effects among the support services, the model failed to converge after 600 iterations. Many of the coefficient estimates for the effects of the various forms of abuse (the phantom concepts), the immediate health consequences, and the concepts, frequency and occurred during pregnancy on the various sources of support were unreasonable. However, the estimated coefficients for the two newly added effects seemed very reasonable (clergy support on physician/nurse support was .19 and clergy support on shelter support was -.15, unstandardized). Consequently, we followed Bollen's (1989) recommendation and provided LISREL with start values for these two effects that were equivalent to the parameters estimated in the model that did not converge.

With the start values in place, the model converged and we obtained estimates that were very similar to those obtained in the previous, converged model estimation ($\chi^2_{(180\ df)} = 1{,}711.46$, $p < .001$, AGFI = .96).[11] Forty-eight (12.9%) standardized residuals exceeded ±2.0; the largest two pointed to discrepancies between the observed and model-implied covariance matrices that were beyond what we were prepared to tolerate.[12] To address this problem, we added two more effects: an effect from knife or gun involvement to physician/nurse support and an effect from physician/ nurse support to counselling support. The former effect is another example of a differential effect among the causal indicators of physical abuse. The latter effect is based on the belief that health professionals refer abused women to counselling services.

Once again, the model failed to converge after 600 iterations. However, rather than continue to add questionable start values, we assumed that we had erred in fixing the effect from dominance or control to physical abuse at the value estimated for Model 2. If the effect is confounded by women's help seeking behaviour, then the fixed effect coefficient was a source of misspecification. Consequently, we ran the model one more time with all the previously mentioned modifications in place and the effect from dominance or control to physical abuse free to be estimated.[13] This model achieved $\chi^2_{(178\ df)} = 1{,}583.81$, $p < .001$, AGFI =

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[11] A sample of 400 cases would have produced $\chi^2 = 166.03$, $p = .76$ and 500 cases would have produced $\chi^2 = 207.64$, $p = .08$.

[12] The observed correlation between *reported knife or gun involvement* and *reported physician/ nurse support* was .35 and the model implied a correlation of .41 Similarly, the observed correlation between *reported physician/nurse support* and *reported counselling support* was .42 and the model implied a correlation of .36.

[13] The error term for physical abuse was readjusted once all the modifications to the model were made so that the amount of explained variance in the phantom concept was 85% (15% of the variance was derived from indeterminate sources).

.97.[14] Based on our review of the standardized residuals, we decided to add two more effects to the model: one from shelter support to counselling support, which likely would be demanded by those who work in emergency shelters because they are very likely to refer abused women to counselling services. The other added effect is from contact limited to counselling support indicating, once again, that the phantom concept, dominance or control cannot adequately account for the effects of its putative causal indicators on the sources of societal intervention.[15]

The model $\chi^2_{(176\ df)}$ now equalled 1508.12, $p < .001$ and the AGFI = .97.[16] Forty-three (11.6%) standardized residuals exceeded ±2.0 and there was still room for improvement. Specifically, the discrepancies between the model-implied and observed covariances between *reported being limited to finances* and *reported counselling support* and between *reported clergy support* and *reported counselling support* were larger than acceptable. Consequently, effects were added from limited to finances to counselling support and from clergy support to counselling support, suggesting that the clergy, in addition to referring abused women to physicians and nurses, refer abused women to counselling services.[17]

These 12 modifications resulted in $\chi^2_{(174\ df)} = 1{,}469.48$, $p < .001$, AGFI = .97 (see Figure 6 for all modifications made to the model).[18] (Recall that the model χ^2 for Model 2 was $\chi^2_{(91\ df)} = 462.62$, $p < .001$.) Forty (10.8%) standardized residuals exceeded an absolute value of 2.0; the largest, at 4.2, was associated with *reported being called names* and *reported police support*. The observed correlation of .49 was larger than the model-implied correlation of .43. The second largest standardized residual (-4.0) was associated with *reported physician/nurse support*

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[14] Note that the number of degrees of freedom was not reduced by one for the freeing of the effect from dominance or control to physical abuse because we had already reduced the number of degrees of freedom by one when we fixed the coefficient at the previously estimated value.

A sample of 400 cases would have produced $\chi^2 = 153.64$, $p = .91$ and 500 cases would have produced $\chi^2 = 192.15$, $p = .22$.

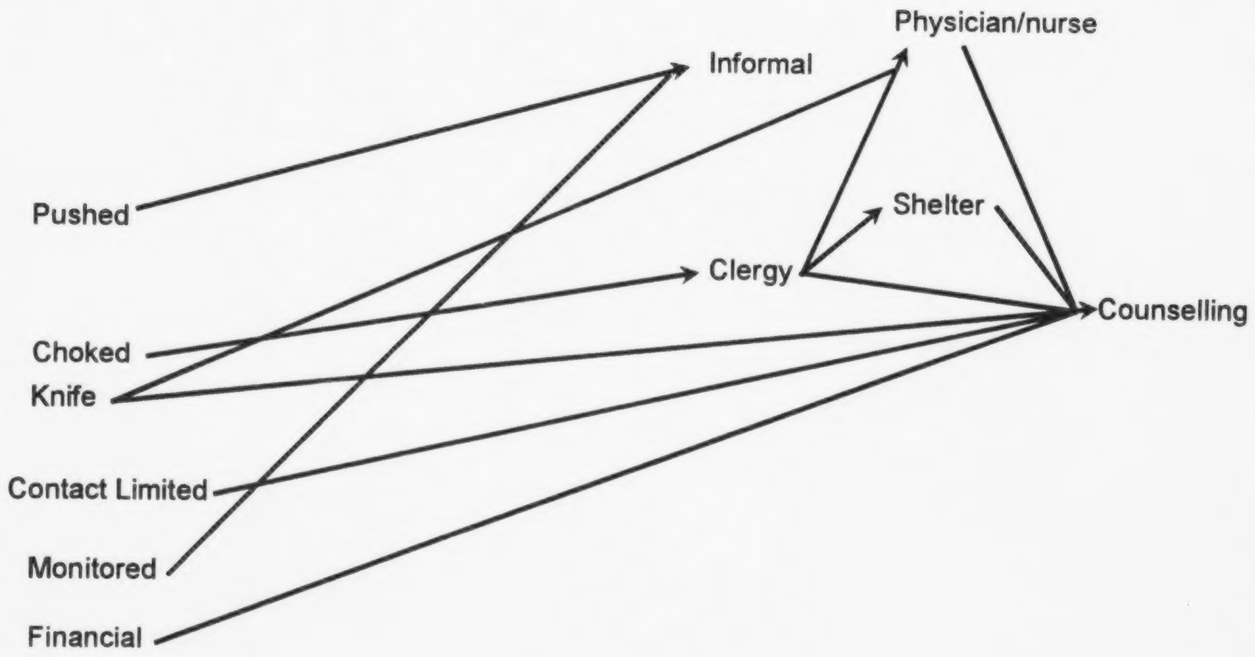
[15] The observed correlations for *reported limited contact* and *reported counselling support* and for *reported shelter support* and *reported counselling support* were .41 and .31, compared to their model-implied correlations of .37 and .23, respectively.

[16] A sample of 500 cases would have produced $\chi^2 = 182.97$, $p = .34$ and 600 cases would have produced $\chi^2 = 219.64$, $p = .01$.

[17] The first attempt to estimate this model resulted in nonconvergence after 600 iterations. We provided the model with the previously estimated coefficient estimate for the effect of dominance/control on physical abuse (3.02) as a start value and successfully estimated the model on our second attempt.

[18] A sample of 500 cases would have produced $\chi^2 = 178.28$, $p = .40$ and 600 cases would have produced $\chi^2 = 214.01$, $p = .02$.

Figure 6: Effects Added to Model 3


Physician/nurse
Informal
Shelter
Pushed
Clergy
Counselling
Choked
Knife
Contact Limited
Monitored
Financial

and *reported shelter support*. Here, the discrepancy between the observed and model-implied correlations was even smaller: .32 and .35, respectively. Consequently, we accepted the model as reasonably well fit and resisted any temptation to add further modifications.[19]

The LISREL Estimates for the Model

The LISREL estimates for the structural component of Model 3 *The Effectiveness of Societal Responses in Moderating the Health Consequences of Abuse* are presented in Table 18.[20] Although the model explains relatively large proportions of the variance in the immediate health responses and women's help-seeking behaviour, it continues to explain a very small percentage of the variance in women's current health status (14.9%) (see Table 19 for proportions of explained variance in the latent concepts).

Table 18 The Structural Coefficients of Model 3: The Effectiveness of Societal Responses in Moderating the Health Consequences of Abuse

Cause	Effect	Unst.[1]	St.[2]	Fixed (f)/ Estimated (e)
Thrown	Severity of Physical Abuse	1.00	0.04	f
Pushed	"	1.00	0.05	f
Slapped	"	1.00	0.04	f
Kicked	"	2.00	0.07	f
Hit with an Object	"	3.00	0.08	f
Beaten Up	"	5.00	0.16	f
Choked	"	5.00	0.14	f
Knife or Gun Involved	"	8.00	0.19	f

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[19] Some readers may be concerned that the reliance on start values may have resulted in questionable LISREL estimates and may lack confidence in the reported values. Boomsma (1985), however, reported that one obtains the same estimates regardless of the start values provided (e.g., LISREL's automatic starting values, known values, or substantially different values). We attempted to obtain estimates without specifying the eight start values used in the model modification process in order to compare the LISREL estimates with and without the provision of start values, however the model did not converge after 2,000 iterations.

[20] In Model 2, the correlation between the error terms for alcohol use and drug use was estimated to equal .09. In the current model, the correlation between these two concepts equalled .14.

(continued...)

Dominance/Control	"	3.02*	0.44*	e
Threatened	Threats of Harm	1.00	0.78	f
Knife or Gun Involved	"	0.63	0.26	f^3
Forced Sex	Sexual Abuse	1.00	0.92	f
Jealous	Dominance or Control	1.00	0.31	f
Contact Limited	"	1.00	0.29	f
Monitored	"	1.00	0.32	f
Limited to Finances	"	1.00	0.23	f
Called Names	Emotional Abuse	1.00	0.92	f
Occurred During Pregnancy	Physical Injury	0.25*	0.07*	e
Frequency	"	-0.01	-0.03	e
Thrown	"	0.24*	0.08*	f^3
Kicked	"	0.45*	0.16*	e
Hit with an Object	"	0.22*	0.06*	e
Beaten Up	"	0.88*	0.28*	e
Knife or Gun Involved	"	-0.36*	-0.08*	e
Physical Abuse	"	0.04*	0.41*	e
Sexual Abuse	"	-0.22*	-0.07*	e
Occurred During Pregnancy	Psychopathology	0.11*	0.06*	e
Frequency	"	0.03*	0.14*	e
Pushed	"	0.25*	0.23*	
Contact Limited	"	-0.21*	-0.16*	e
Physical Abuse	"	-0.01*	-0.20*	e
Threats of Harm	"	0.19*	0.20*	e
Sexual Abuse	"	0.12*	0.07*	e
Dominance/Control	"	0.15*	0.41*	e

(continued...)

Emotional Abuse	"	0.20*	0.19*	e
Anger	"	-0.15*	-0.08*	e
Occurred During Pregnancy	Altered Psyche	0.11*	0.08*	e
Frequency	"	0.05*	0.33*	e
Jealous	"	-0.18*	-0.19*	e
Limited to Finances	"	-0.18*	-0.15*	
Physical Abuse	"	0.00	0.03	e
Threats of Harm	"	-0.03	-0.04	e
Sexual Abuse	"	0.02	0.02	e
Dominance/Control	"	0.11*	0.37*	e
Emotional Abuse	"	0.08*	0.09*	e
Occurred During Pregnancy	Anger	0.02	0.02	e
Frequency	"	0.02*	0.17*	e
Pushed	"	0.19*	0.32*	e
Physical Abuse	"	-0.01*	-0.37*	e
Threats of Harm	"	0.01	0.02	e
Sexual Abuse	"	0.04	0.04	e
Dominance/Control	"	0.06*	0.30*	e
Emotional Abuse	"	0.07*	0.12*	e
Occurred During Pregnancy	Alcohol Use	-0.03*	-0.04*	e
Frequency	"	0.01*	0.08*	e
Knife or Gun Involved	"	-0.15*	-0.17*	e
Limited to Finances	"	0.04*	0.07*	e
Physical Abuse	"	0.01*	0.26*	e
Threats of Harm	"	-0.00	-0.01	e
Sexual Abuse	"	0.04*	0.07*	e

(continued...)

Dominance/Control	"	0.00	0.02	e
Emotional Abuse	"	-0.00	-0.01	e
Psychopathology	"	0.05*	0.14*	e
Altered Psyche	"	0.03*	0.07*	e
Occurred During Pregnancy	Drug Use	-0.02	-0.02	e
Frequency	"	0.01*	0.10*	e
Monitored	"	0.04*	0.10*	e
Limited to Finances	"	0.08*	0.13*	e
Physical Abuse	"	-0.00*	-0.20*	e
Threats of Harm	"	0.04*	0.11*	e
Sexual Abuse	"	0.02	0.03	e
Dominance/Control	"	0.01	0.08	e
Emotional Abuse	"	0.02	0.04	e
Physical Injury	"	0.03*	0.15*	e
Anger	"	-0.11*	-0.15*	e
Physician/Nurse	"	0.22*	0.30*	e
Occurred During Pregnancy	Physician/Nurse Support	0.02	0.02	e
Frequency	"	0.02*	0.15*	e
Knife or Gun Involved	"	-0.21*	-0.18*	e
Physical Abuse	"	0.02*	0.63*	e
Threats of Harm	"	-0.01	-0.03	e
Sexual Abuse	"	0.09*	0.11*	e
Dominance/Control	"	-0.02*	-0.08*	e
Emotional Abuse	"	0.09*	0.16*	e
Physical Injury	"	0.03*	0.11*	e
Psychopathology	"	-0.00	-0.01	e
Altered Psyche	"	-0.04*	-0.06*	e

(continued...)

Anger	"	-0.03*	-0.03*	e
Alcohol Use	"	-0.16*	-0.12*	e
Clergy	"	0.19*	0.10*	e
Occurred During Pregnancy	Informal Support	0.04*	0.03*	e
Frequency	"	0.02*	0.13*	e
Pushed	"	0.37*	0.45*	e
Monitored	"	0.19*	0.21*	e
Physical Abuse	"	-0.02*	-0.42*	e
Threats of Harm	"	0.26*	0.37*	e
Sexual Abuse	"	-0.01	-0.00	e
Dominance/Control	"	0.10*	0.36*	e
Emotional Abuse	"	0.26*	0.31*	e
Physical Injury	"	-0.00	-0.01	e
Psychopathology	"	-0.11*	-0.14*	e
Altered Psyche	"	-0.05*	-0.05*	e
Anger	"	-0.13*	-0.09*	e
Alcohol Use	"	0.06*	0.03*	e
Drug Use	"	-0.21*	-0.10*	e
Occurred During Pregnancy	Clergy Support	0.05*	0.11*	e
Frequency	"	0.01*	0.26*	e
Choked	"	-0.09*	-0.17*	e
Physical Abuse	"	0.01*	0.33*	e
Threats of Harm	"	-0.04*	-0.15*	e
Sexual Abuse	"	0.01	0.03	e
Dominance/Control	"	0.00	0.04	e
Emotional Abuse	"	0.02*	0.08*	e
Physical Injury	"	-0.03*	-0.22*	e

(continued...)

Psychopathology	"	-0.01	-0.02	e
Altered Psyche	"	-0.01	-0.03	e
Anger	"	-0.01	-0.01	e
Alcohol Use	"	-0.08*	-0.11*	e
Drug Use	"	0.12*	0.17*	e
Occurred During Pregnancy	Shelter Support	0.05*	0.10*	e
Frequency	"	-0.01*	-0.12*	e
Physical Abuse	"	0.01*	0.73*	e
Threats of Harm	"	-0.01	-0.04	e
Sexual Abuse	"	0.03*	0.06*	e
Dominance/Control	"	-0.01*	-0.13*	e
Emotional Abuse	"	0.02*	0.06*	e
Physical Injury	"	-0.03*	-0.20*	e
Psychopathology	"	0.01*	0.05*	e
Altered Psyche	"	0.03*	0.08*	e
Anger	"	-0.01	-0.01	e
Alcohol Use	"	-0.04*	-0.05*	e
Drug Use	"	0.08*	0.10*	e
Clergy	"	-0.13*	-0.12*	e
Occurred During Pregnancy	Counselling Support	0.00	0.00	e
Frequency	"	0.01*	0.09*	e
Knife or Gun Involved	"	-0.18*	-0.19*	e
Contact Limited	"	0.11*	0.20*	e
Limited to Finances	"	0.06*	0.09*	e
Physical Abuse	"	0.00	0.10	e
Threats of Harm	"	0.04*	0.11*	e
Sexual Abuse	"	-0.04*	-0.05*	e

(continued...)

Dominance/Control	"	-0.01	-0.08	e
Emotional Abuse	"	-0.01	-0.01	e
Physical Injury	"	-0.03*	-0.12*	e
Psychopathology	"	0.06*	0.14*	e
Altered Psyche	"	0.04*	0.08*	e
Anger	"	0.01	0.01	e
Alcohol Use	"	-0.01	-0.01	e
Drug Use	"	0.04*	0.04*	e
Physician/Nurse	"	0.15*	0.19*	e
Clergy	"	0.10*	0.06*	e
Shelter	"	0.18*	0.12*	e
Occurred During Pregnancy	Police Support	0.15*	0.17*	e
Frequency	"	0.01*	0.06*	e
Physical Abuse	"	0.02*	0.79*	e
Threats of Harm	"	0.03*	0.06*	e
Sexual Abuse	"	0.03*	0.04*	e
Physical Injury	"	-0.04*	-0.14*	e
Psychopathology	"	-0.01	-0.03	e
Altered Psyche	"	-0.03*	-0.05*	e
Anger	"	-0.08*	-0.09*	e
Alcohol Use	"	-0.17*	-0.13*	e
Drug Use	"	-0.04	-0.03	e
Household Income	Current Health Status	0.10*	0.21*	e
Education	"	0.05*	0.12*	e
Age	"	-0.09*	-0.15*	e
Physical Injury	"	-0.01	-0.01	e
Psychopathology	"	-0.09	-0.04	e

(continued...)

Altered Psyche	"	-0.01	-0.00	e
Anger	"	0.03	0.01	e
Alcohol Use	"	0.01	0.00	e
Drug Use	"	-0.24*	-0.04*	e
Physician/Nurse	"	-0.26*	-0.06*	e
Informal Support	"	-0.01	-0.00	e
Clergy	"	-0.45*	-0.05*	e
Shelter Support	"	-0.12	-0.01	e
Counselling Support	"	0.02	0.01	e
Police Support	"	0.22*	0.05*	e

[1] Unstandardized.
[2] Standardized.
[3] Fixed to equal the value estimated in Model 1.
*$t > 2$.

Table 19 Proportions of Explained Variance in the Latent Endogenous Concepts of Model 3

Variable	R^2	Fixed (f)/ Estimated (e)
Physical Abuse	.85	f
Threats of Harm	.85	f
Sexual Abuse	.85	f
Dominance/Control	.85	f
Emotional Abuse	.85	f
Physical Injury	.66	e
Psychopathology	.54	e
Altered Psyche	.28	e
Anger	.30	e
Alcohol Use	.21	e
Drug Use	.32	e

(continued...)

Physician/Nurse Support	.62	e
Informal Support	.90	e
Clergy Support	.20	e
Shelter Support	.31	e
Counselling Support	.35	e
Police Support	.61	e
Current health status	.15	e

The proportion of explained variance in informal support (.90) seems too large to be believed. We wondered whether the R^2 was inflated as an estimation artifact, however, we found little evidence to support this explanation. First, there does not appear to be a collinearity problem among the effects leading to informal support. The largest correlation among the estimated effects is between the effect of being monitored on informal support and the effect of dominance or control on informal support and is -.59. Second, there is no indication that any of the effects have inflated standard errors. The largest statistically insignificant standardized effect of .10 is the effect of physical abuse on counselling support. Only two of the standardized effects on informal support were found to be statistically insignificant and ranged from -.00 to -.01.

There are a great number of causal pathways leading from any one of the phantom concepts representing various forms of wife abuse to women's current health status. The following discussion highlights the most direct effects and those indirect effects that suggest significant or noteworthy exceptions to the general rule. Most particularly, we examine the determinants of abused women's utilization of the six studied sources of support and their effectiveness in modifying the adverse health effects of the various forms of abuse. Undoubtedly, not all of the indirect effects are described in the following discussion. Because differential effects were found for the causal indicators of physical abuse and dominance or control, the discussion will highlight, at times, the causal pathways arising from select causal indicators, rather than from the phantom concepts themselves.

The Determinants of Abused Women's Utilization of Select Services

The following comments are provided to assist the reader in gaining a "big picture" perspective of a very complex model, prior to any discussion of specific effects. First, the 12 effects added to the model in order to improve its fit were all statistically significant. These added effects were of two kinds: seven effects were from some of the causal indicators of severity of physical abuse and of dominance or control to the societal responses. It is these effects that refute the claim that we can conceptualize these particular acts as two specific forms of wife abuse that, in turn, cause specific interventions to be enacted. That is, there is resounding evidence that the CMWA failed. The remaining five added effects are of the kind that indicates that contact with a particular source of support leads to contact with another source of support. Second, the segment of the model that was also present in Model 2 has been replicated very closely. That is, with the exception of the segment of the model that has been modified by the insertion of the sources of support (i.e., the effects of the immediate health responses on current health status), the effects that are present in both Models 2 and 3 are comparable in sign and magnitude.

Abuse during pregnancy.

For the most part, women who are abused while they are pregnant are slightly more likely to receive the services of various sources of support than women who are abused and not pregnant. And, of the six sources of support studied, abuse during pregnancy is more likely to lead to police involvement (standardized total effect is .16) than any other societal response.[21] The standardized total effects of abuse during pregnancy on the remaining sources of support are extremely small (.01 to .09). The role of pregnancy in determining whether various sources of support are enacted is partially determined by abused women's immediate health responses. For example, abuse during pregnancy does not directly lead to physician/nurse support. However, women who are abused while pregnant incur more severe injuries and consequently seek the aid of physicians and nurses. Additionally, abused women who are pregnant are less likely to use alcohol as a coping mechanism, and alcohol use deters women from seeking the support of physicians and nurses. In reference to informal sources of support, pregnant, abused women are more likely to turn to their friends and relatives for help, compared to abused women who are not pregnant. However, if they develop symptoms of psychopathology and alterations to their psyches (likely consequences of being abused while pregnant) they are inhibited from utilizing these sources of help.

The clergy are another source of support for women who are abused while they are pregnant. As with health professionals, alcohol use tends to deter women from seeking the assistance of the clergy. However, because pregnancy protects women from turning to alcohol as a coping mechanism, it opens a pathway to the support of the clergy. Similarly, the physical injuries sustained as a result of the abuse modifies the total effect of abuse during pregnancy on clergy support. Because women who are pregnant are more severely injured, they tend not to turn to their religious leaders, most likely because they require medical attention. This modifying effect is also true for pregnant, abused women's tendency to utilize shelters. Because of the severity of their injuries, pregnant women are less likely to seek the support of shelters, presumably because they require medical attention. However, in contrast to the role that psychopathology and alterations to the psyche play in pregnant women's utilization of informal sources of support, it is noted that pregnant women who develop these immediate health responses are more likely to seek the support of shelters.

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[21] Generally, it is advisable to avoid referring to standardized effects in relation to dichotomous variables because the standard deviation has no intuitive appeal. It is preferable to consider the unstandardized effects of dichotomous variables wherein the real units are easily interpreted as the presence or absence of the phenomenon of interest (Hayduk, 1987, chap. 6). However, it is clumsy and possibly confusing to present some of the discussion in terms of real units and other parts of the discussion in terms of standardized effects (which give an intuitive grasp of effect sizes). Consequently, we have elected to tolerate the slight imprecision in interpretation in exchange for ease of reading.

To standardize the unstandardized total effects provided by the LISREL program, we multiplied the total effect by the standard deviation of the causal concept divided by the standard deviation of the effect concept. Multiplying by one standard deviation to convert a hypothetical one unit change in the causal concept into a one standard deviation, or substantial, change while at the same time dividing by the effect concept's standard deviation guarantees that a one unit change is a substantial change in the effect concept.

The frequency of the abuse.

The frequency in which abuse occurs appears to determine whether various societal responses are enacted. The standardized total effects (STEs) of frequency on the six sources of support range from -.11 (for shelter support) to .26 (for clergy support). The greater the frequency of abuse the more likely women are to receive assistance from five of the sources studied (i.e., a positive effect), including physicians and nurses, informal sources of help, the clergy, counsellors, and the police. Oddly, a negative effect was estimated for the influence of frequency on shelter support. For each unit increase in the frequency scale, the model suggests that a woman moves .01 steps closer to not seeking the assistance of a shelter. It is difficult to know why this may be the case. Perhaps, the qualities, attributes, or conditions necessary for abused women to take action by leaving their violent relationships and going to shelters also ensure that such actions occur after relatively few incidents of abuse. Women who suffer from repeated attacks may lack the necessary characteristics, whether they be skills, self-determination, or wherewithal, to take such action—a concerted effort to terminate the relationship. In a similar vein, perhaps only those women who are determined to maintain the integrity of their families, at whatever cost, and who consequently choose not to seek the support offered by shelters, remain in abusive relationships long enough to sustain repeated incidents of abuse. This conjecture is consistent with the observation that women who suffer the most frequent incidents of abuse are led to seek the support of their clergy (STE is .26), who in turn deter women from utilizing the services of shelters (STE is -.12), presumably in an attempt to prevent the dissolution of the relationship.

Abused women's immediate health responses to their abuse modify the effects of the frequency of that abuse on their help-seeking. For example, increasing frequency leads to greater psychopathology, alterations to the psyche, and a tendency to rely on drugs or medications. In turn, these health responses lead abused women to seeking counselling support (STE of frequency on counselling support is .16). As another example, consider the role of frequency on physician/nurse support (STE is .13). In this instance, the immediate health responses appear to deter women from seeking the support of health professionals. Specifically, increasing frequency of abuse leads to alterations to the psyche, anger, and alcohol use, health responses that diminish abused women's likelihood of seeking the support of physicians and nurses. However, the direct effect of frequency on physician/nurse support is positive. Consequently, the total positive effect of frequency on physician/nurse support is reduced because of the negative effects of the immediate health responses.

There is an interesting loop within the causal model that is worthy of comment because it plays a role in many of the pathways to be considered. In relation to frequency of abuse, note that increasing frequency, as mentioned previously, leads to clergy support and consequently touches the loop. The clergy tend to refer abused women to physicians and nurses, who are very likely to encourage a woman to take medications (standardized direct effect is .30). And, the use of drugs or medications cause women to seek the assistance of the clergy (standardized direct effect is .17).[22] We speculate that this portion of the model indicates that women who hold strong values about the maintenance of the family at all costs, and who have established ties with religious institutions, get caught in a cycle wherein they experience frequent abusive incidents, turn to their religious leaders for support, and are referred to physicians and nurses, who tend to prescribe medications. Dissatisfied with the response (i.e., medications are not the solution they are seeking), they return to the clergy for further guidance and support. Physicians and nurses, and the clergy, although less so, refer abused women to counselling services (standardized direct effects are .19 and .06, respectively). Additionally, the drug use itself leads to counselling support and shelter support.

The nature of the abuse.

The nature of the abuse also serves to determine which sources of help may be availed, if any. Disregarding the differential effects of some of the causal indicators of physical abuse, for the moment, we find that the severity of the physical abuse is a very strong determinant of whether the various sources of support are utilized. These findings provide support for the conceptualization of severity of physical abuse embodied in the CMWA. With every standard deviation increase in the severity of physical abuse, there is a corresponding .74 standard deviation increase in police support (this is the total effect of physical abuse on police support). Severity of physical abuse also strongly determines whether physicians and nurses and shelter personnel become involved (STEs are .69 and .60, respectively). The role of severity in the determination of clergy support and counselling support is less pronounced (both standardized total effects equal .22). Interestingly, the greater the severity of the physical abuse, the less likely that informal sources of support are enacted (STE is -.38). Although counterintuitive, this finding is likely explained by the fact that it is a minority of abused women who utilize two or more sources of support (44%). Once the physical abuse becomes very severe, abused women must rely on professional sources of support, rather than that offered by their friends, relatives, or neighbours.

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[22] The loop involves three concepts: from clergy support to physician/nurse support, to drug use, and back to clergy support.

An examination of the four added direct effects from the causal indicators of physical abuse to the sources of support does not alter our conclusions. However, we find that the sole act of being pushed, grabbed, or shoved is likely to lead to informal support (STE is .37), whereas the other minor acts of physical abuse do not have an effect (e.g., the STE of being slapped on informal support is -.02). Also, although we claimed that increasingly severe physical abuse has a positive effect on clergy support, this is not the case if the woman was choked (the STE of being choked on clergy support is -.14). Similarly, knife or gun involvement does not lead to physician/nurse support or counselling support (STEs are -.05 and -.13, respectively).

Two of the immediate health responses modify the overall effect of physical abuse on physician/nurse support. Not only does increasing severity of physical abuse lead directly to physician/nurse support, but it also causes increasingly severe physical injuries, which, in turn, lead to the involvement of health professionals. However, with increasing severity of physical abuse, women are more likely to use alcohol as a coping mechanism, which deters them from seeking the assistance of physicians and nurses, of their friends, relatives, and neighbours, of the clergy, of shelters, and of the police.

Rather than discuss the effects of the phantom concept, threats of harm, we will examine the effects of its two causal indicators, being threatened and knife or gun involvement because of their differential effects on the various sources of support. First, in relation to being threatened, the exogenous concept, we find that, for the most part, such an act leads to the support of friends and relatives (STE is .26) and perhaps counselling support (STE is .09). Such behaviour clearly does not lead to physician/nurse support, clergy support, or shelter support (STEs are -.03, -.11, and -.01, respectively. On the other hand, knife or gun involvement leads to the involvement of shelter services and the police (STEs are .13 and .19, respectively). Once again, we find that there are indirect pathways from the forms of abuse to the sources of support through the immediate health responses. Specifically, women who have been threatened are likely to develop psychopathology and to use medications or drugs as a coping mechanism, which inhibit their likelihood of seeking support from their relatives and friends and foster the utilization of shelters.

Sadly, women who experience sexual abuse within their intimate relationships are no more likely to receive any support or societal intervention, even though such behaviour is a criminal offense. The strongest total effect of sexual abuse on the sources of support is to physician/nurse support (STE is .04). However, we find that the total effect is smaller than the direct effect of sexual abuse on physician/nurse support (standardized direct effect is .11) because sexual abuse leads to alcohol use, which deters women from seeking the assistance of physicians and nurses.

Dominance or control also is not likely to lead to any societal intervention.

The standardized total effects of dominance or control (which include the pathways through physical abuse) on the six sources of support range from .03 to .10. The largest STE (.10) is for the effect of dominance or control on police support (note that this effect must operate through physical abuse because dominance or control is not permitted a direct effect on police support). There are some differential effects for the causal indicators of dominance or control that are noteworthy. Specifically, the standardized total effect of being monitored on informal support is .23. This suggests that husbands' jealousy, having one's social contact limited, and having one's access to the family's finances restricted do not lead women to seek support from informal sources, however, being monitored does lead to such help-seeking. Similarly, husbands' jealousy and being monitored do not lead women to seek counselling support, however having one's contact limited and financial access restricted result in such support (STEs are .20 and .10, respectively).

Finally, emotional abuse is likely to lead to the interventions offered by physicians and nurses and informal sources of support (STEs are .15 and .26, respectively). Women who are emotionally abused, in the absence of any other form of abuse, are unlikely to receive assistance from the clergy, shelters, or counsellors (STEs are .08, .07, and .06, respectively). Here, too, the immediate health responses modify the effects of emotional abuse on help-seeking. In particular, emotional abuse leads to psychopathology, alterations to the psyche, and anger, all of which inhibit emotionally abused women's tendency to seek the support of family members and friends. Additionally, alterations to the psyche and anger inhibit their likelihood of seeking the support of physicians and nurses.

Referrals from other sources of support.

We also noted that some sources of support influence whether abused women utilize other sources of support. For example, if women seek the aid of the clergy they are likely to be referred to physicians or nurses and counsellors (the standardized direct effects are .10 and .06, respectively). And, as discussed previously, the clergy discourage or dissuade abused women from turning to shelters for support (standardized direct effect is -.12).[23] Physicians and nurses, as well as the staff at shelters, are also likely to ensure that abused women receive help from counsellors (standardized direct effects are .19 and .12, respectively).

The Effectiveness of Societal Responses to Wife Abuse

As noted in the previous chapter, and by the relatively small amount of variance explained in current health status, the immediate health responses to the various forms of abuse have relatively little influence on women's long-term health status. Here we examine whether the various sources of support serve to further diminish a woman's health status or provide a means by which the adverse effects of abuse on women's health are alleviated. We are not so much interested in the actual effect sizes, but rather, in the direction of the effects. That is, if a particular source of support is enacted, is the negative effect of abuse increased or diminished in magnitude?

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[23] An alternative explanation of the negative effect from clergy support to shelter support is that the clergy provide such effective interventions that shelter support is not required.

The unstandardized total effects on current health status of four of the six sources of support are negative.[24] This suggests that if abused women obtain the assistance of physicians or nurses, informal sources of support, the clergy, or shelter staff, either because of a particular type of abuse or because of an immediate health response, or both, their long-term health will be poorer than if the societal intervention was not enacted. However, the effects are so small that they are likely to be inconsequential and statistically insignificant. For example, consider women who are physically abused and who incur injuries as a result, and which directly affect their current health status. For every standard deviation increase in the severity of the physical abuse experienced, they sustain a .003 standard deviation decline in their current health status.[25] In contrast, consider women who are physically abused and who directly seek the assistance of physicians or nurses, as a result, or who sustain injuries and consequently see physician or nurses. Such contact influences their current health status. In this instance, a one standard deviation increase in the severity of the physical abuse results in a .042 standard deviation decline in health status.[26]

If women are exposed to threats of harm, experience psychopathology, and seek no assistance, their current health status is .008 standard deviations lower for every standard deviation increase in threats of harm. However, if we consider the situation wherein women who are exposed to threats of harm consequently experience psychopathology and seek the support of family members and friends, and only that of family members and friends, their current health status drops .009 standard deviations for every standard deviation increase in threats of harm.[27]

In examining the effectiveness of the clergy, we consider women who seek the aid of their religious leaders because they have been frequently sexually or physically abused and may have turned to drugs or medications to cope. In the absence of clerical support, the effect of the frequency of abuse on current health status, through drug use corresponds to a .004 standard deviation decline in health status for every standard deviation increase in frequency. However, if the clergy are involved, the standardized indirect effect of the frequency of the abuse on women's health status is -.018; the clergy's involvement serves to further diminish abused women's health status.

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[24] The unstandardized total effects of each of the six sources of support on current health status are: (a) physician/nurse support, -.31; (b) informal support, -.01; (c) clergy support, -.49; (d) shelter support, -.11; (e) counselling support, .02; and (f) police support, .22.

[25] The unstandardized indirect effect is calculated as: (physical abuse to injury)(injury to current health status), or (.042)(-.007) = -.0003. To standardize the indirect effect we multiply the unstandardized indirect effect by the standard deviation of physical abuse divided by the standard deviation of current health status (see Footnote 21 in this chapter).

[26] The indirect pathways are as follows: (physical abuse to physician/nurse support)(physician/nurse support to current health status) + (physical abuse to physical injury)(physical injury to physician/nurse support)(physician/nurse support to current health status) + (physical abuse to physical injury)(physical injury to current health status).

[27] The indirect path excluding informal support is: (threats of harm to psychopathology)(psychopathology to current health status). Two paths are added to calculate the total effect of threats of harm on current health status through psychopathology and informal support: (threats of harm to informal support)(informal support to current health status) + (threats of harm to psychopathology)(psychopathology to informal support)(informal support to current health status).

The effect of physical abuse, which causes alterations to women's psyches has no direct effect on their current health status (standardized direct effect is .000). However, if they go to a shelter, either directly because of the physical abuse or because of the psychic alterations produced, their current health status drops .011 standard deviations for every standard deviation increase in the severity of the physical abuse.

The only two sources of support that have positive total effects on women's current health status are counselling support and police support. We find that women who are frequently physically or sexually abused and who suffer from psychopathology, as a result, have a .006 standard deviation decline in their health status for every standard deviation increase in frequency. However, if they obtain counselling support because of the frequency or because of the psychopathology, their health status declines by .005 standard deviations.

Finally, police intervention seems to have the most positive effect on abused women's long-term health status. Once again, women who are physically abused and who sustain physical injuries, as a result, will score .003 standard deviations lower on current healths status for every standard deviation increase in the severity of the physical abuse. However, if the police intervene, their current health status will improve .032 standard deviations for every standard deviation increase in the severity of the physical abuse.

In summary, the experience of abuse, the immediate health responses that result from that abuse and the various sources of support provide little, if any, explanatory power in relation to women's current health status. The minute changes in the indirect effects of abuse, depending on the presence or absence of particular sources of support are possibly mere sampling fluctuations around the value zero and the direction or sign of the effect may well be meaningless; that is, the effects may well be nil. Women's current health status may not be affected by exposure to abuse, regardless of whether certain sources of support are enacted. On the other hand, the direction of the effects (negative for physician/nurse support, informal support, clergy support, and shelter support and positive for counselling support and police support) may be indicative of true, albeit small, effects. Another possibility is that the effects are confounded by the influence of time. Women who were recently abused may have significantly different responses from those abused several years ago. Additionally, the effectiveness of the sources of support may have changed over time.

The possibility that the passage of time has confounded the results is explored in the following chapter where we re-estimate the model for two time periods in search of historical trends. These re-estimations are described following a discussion of the validation procedure undertaken in an attempt to verify that the final Model 3 fits the data reasonably well and that the modifications made were not mere capitalizations on chance.

Chapter 7

Validating the Model and Examining Historical Trends

Validation of the Model

When one modifies a model on the basis of LISREL's diagnostic output, or empirical evidence, there is always the possibility that one has merely capitalized on chance. MacCallum, Roznowski, and Necowitz (1992) demonstrated that such modifications are rarely, or inconsistently, replicated in samples smaller than 800. One approach to strengthening our confidence that a model, with all of its *post hoc* modifications, is replicable, or generalizable, is to "cross-validate" the model with another data set. Fortunately, the Violence Against Women Survey (VAWS) was large enough to permit us to randomly split the sample in half so that we could form two sample covariance matrices (Bollen, 1989; Hayduk, 1987). The first half sample was used to develop Models 1, 2 and 3. The second half sample was reserved to conduct an uncompromised test of the final model. Hayduk recommended that, in using the split-half strategy, one could "stack" the models for the two covariance matrices in order to test whether chance fluctuations account for the data motivated modifications. However, in light of the size of Model 3, we decided against stacking the models for the validation procedure. Instead, we repeated the model building exercise, step-by-step, and compared the revised models with the validation models.[1]

The Covariance Matrices for the Validation Models

As for the first half sample covariance matrices, pairwise deletion of missing cases was used in the creation of the variance/covariance matrix. The number of cases contributing to a covariance calculation for the entire set of indicators (33 indicators in Model 3) ranged from 3,995 to 5,447 women. The smallest number of cases contributing to the calculation of any single covariance was specified as the sample size for the LISREL program.

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[1] The procedure had to be undertaken incrementally in order to obtain the variance estimates in the phantom concepts and then to assign a value to their respective error terms (ψ's) that would attribute 15% of the variance in the phantom concepts as arising from indeterminante or unspecified sources.

Model 1

Model 1 actually fit the second half sample data better than the first.[2] With the ψ values for the five phantom concepts fixed so that 15% of their variance was derived from indeterminate sources, the $\chi^2_{(9\ df)} = 24.89$, $p = .003$, and the AGFI = .999.[3,4] Whereas, five standardized residuals exceeded a value of 2.0 with the first half data set, only one exceeded that value with the second half. The covariance between *reported husband as jealous* and *reported current health status* produced the largest discrepancy between observed and model-implied correlations in the initial model (the observed correlation was -.06 compared to a model-implied correlation of -.08). This covariance pair was well fit in the validation model (the observed correlation was -.09 and the model-implied correlation was -.10). The largest standardized residual in the validation model (2.3) was associated with the covariance between *reported something thrown* and *reported current health status*. This occurred because the observed correlation of -.05 was suggested to be -.08 by the model's specification. The initial Model 1 explained 14.3% of the variance in ever married women's current health status and the same model, based on the second half data set, explained 15.4%. Table 20 provides the LISREL estimates (both unstandardized and standardized) for the structural coefficients of Model 1 so that the reader can compare the estimates based on the first and second halves of the data set.

Table 20 The Structural Coefficients of Model 1: Cross-Validation

Cause	Effect	First half sample Unstandard.[1] (Standard.[2])	Second half sample Unstandard. (Standard.)	Fixed (f)/ Estimated (e)
Something Thrown	Severity of Physical Abuse	1.00 (0.06)	1.00 (0.05)	f
Pushed	"	1.00 (0.08)	1.00 (0.08)	f

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[2] The maximum likelihood fitting function for the validation model was .00264809 compared to .00379029 for the initial Model 1.

[3] A sample of 2,000 women would have produced a $\chi^2 = 10.59$ ($p = .30$) and a sample of 1,000 women who have produced a $\chi^2 = 5.29$ ($p = .81$).

[4] Because the covariances among the latent exogenous concepts were specified to equal their corresponding observed covariances, the number of degrees of freedom for the model Chi-square was adjusted downward so that we would not capitalize on any undeserved degrees of freedom.

(continued...)

Slapped	"	1.00 (0.06)	1.00 (0.06)	f
Kicked	"	2.00 (0.11)	2.00 (0.11)	f
Hit with an Object	"	3.00 (0.12)	3.00 (0.12)	f
Beaten Up	"	5.00 (0.25)	5.00 (0.24)	f
Choked	"	5.00 (0.21)	5.00 (0.22)	f
Knife or Gun Involved	"	8.00 (0.29)	8.00 (0.29)	f
Threatened	Threats of Harm	1.00 (0.78)	1.00 (0.66)	f
Knife or Gun Involved	"	0.63 (0.26)	1.21 (0.42)	e[3]
Forced Sex	Sexual Abuse	1.00 (0.92)	1.00 (0.92)	f
Contact Limited	Dominance/ Control	1.00 (0.31)	1.00 (0.31)	f
Monitored	"	1.00 (0.29)	1.00 (0.29)	f
Limited to Finances	"	1.00 (0.32)	1.00 (0.32)	f
Husband is Jealous	Emotional Abuse	1.00 (0.24)	1.00 (0.24)	f
Called Names	"	1.00 (0.92)	1.00 (0.92)	f
Household Income	Health Status	0.10* (0.21*)	0.12* (0.26*)	e
Education	"	0.05* (0.13*)	0.03* (0.10*)	e
Age	"	-0.09* (-0.15*)	-0.07* (-0.11*)	e

(continued...)

Occurred During Pregnancy	"	-0.12 (-0.03)	-0.25* (-0.06*)	e
Frequency	"	0.01 (0.03)	-0.01 (-0.02)	e
Physical Abuse	"	-0.00 (-0.02)	-0.01 (-0.03)	e
Threats of Harm	"	-0.15* (-0.07*)	0.06 (0.03)	e
Sexual Abuse	"	0.02 (0.01)	0.04 (0.01)	e
Dominance/Control	"	0.01 (0.02)	-0.01 (-0.02)	e
Emotional Abuse	"	-0.08 (-0.04)	-0.09 (-0.04)	e

[1] Unstandardized.
[2] Standardized.
[3] Initially estimated then fixed.
*t value > 2.0.

A few discrepancies in the structural coefficients for the initial and validation models merit comment. First, note that the estimated effect of knife or gun involvement on threats of harm is larger in the second half sample data set. In that this act occurs rarely, we would expect to find some random fluctuations here. The effect of abuse during pregnancy on current health status is statistically significant in the validation model, but not in the first; however, the magnitude is extremely small and consequently the discrepancy is not alarming. Similarly, the effect of threats of harm on health status was negative and significant in the initial model, but positive and insignificant in the validation model. Again, however, the magnitude of the effect is very small (possibly nil). Overall, we are satisfied that few differences emerged from the two data sets.

Model 2

The revised version of the final Model 2 resulted in a slightly poorer fit with the validation data set. The model achieved $\chi^2_{(91\ df)} = 642.36$, $p < .001$, and AGFI = .99 compared to $\chi^2_{(91\ df)} = 462.62$, $p < .001$, and AGFI = .99 for the initial half of the data.[5] Whereas only 11 (5.9%) of the standardized residuals exceeded ± 2.0 in the initial model, the validation model resulted in 29 (15.4%) standardized residuals exceeding ± 2.0. The covariate pair with the poorest fit was *reported being hit with an object* and *reported alcohol use* (standardized residual was -4.8). The observed correlation of .20 was implied by the model to equal .26.[6] As no direct effect from being hit with an object to alcohol use had been entered into the model, this instance of overfit was not associated with a modification that was made because of chance occurrences in the first half data set. That is, we cannot say that an added effect was redundant and contributing to the overestimation of the covariance between *reported being hit with an object* and *reported alcohol use*. Rather than commence making modifications to Model 2, or assessing the significance of the added effects, we elected to estimate Model 3.

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[5] Recall that the size of the samples for the two data sets are not equivalent. Samples of 500 women would have resulted in $\chi^2 = 56.13$, $p = .99$ with the initial model and $\chi^2 = 80.25$, $p = .78$ with the validation model; 750 cases would have resulted in $\chi^2 = 84.24$, $p = .68$ with the initial model and

(continued...)

Model 3

The revised Model 3 also fit the validation data set reasonably well ($\chi^2_{(174\ df)} = 1{,}354.45$, $p < .001$, AGFI = .97).[7] Indeed, the minimal fit function was smaller for the validation data set than for the initial data set, and would have resulted in a relatively smaller χ^2 value for the validation data set had the sample sizes been equivalent.[8] Despite this evidence of reasonable fit, the validation data set model had 53 of 371 (14.3%) meaningful standardized residuals exceed a value of ±2.0. The largest standardized residual (-5.6) was for *reported being beaten up* and *reported clergy support*. The observed correlation between these two indicators (.18) was smaller than the model-implied correlation of .24. Prior to considering any modifications to the model, we explored whether there was any indication that the data-driven modifications made to the initial model were simply the result of chance occurrences in the data matrix. First, we compared the unstandardized structural coefficients for the two models (see Table 21).

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[5](...continued)
$\chi^2 = 120.46$, $p = .02$ with the validation model.

[6] The initial model implied that the correlation between *reported being hit with an object* and *reported alcohol use* was .23 and the observed correlation in the first half data set was .20.

[7] We initially estimated the validation model using the same seven starting values used for the first half sample data set. These starting values were refined as LISREL estimates were obtained in order to reduce the number of iterations required.

[8] The minimal fit function for the validation data set was .169561 compared to .1786389 for the first half random data set. In the current model, a sample of 500 cases would have resulted in $\chi^2 = 169.22$, $p = .59$ and 600 cases would have resulted in $\chi^2 = 203.13$, $p = .06$.

Table 21 The Unstandardized Structural Coefficients of the Initial and Validation Model 3

Cause	Effect	Initial Model 3	Validation Model 3	Fixed (f)/ Estimated (e)
Thrown	Severity of Physical Abuse	1.00	1.00	f
Pushed	"	1.00	1.00	f
Slapped	"	1.00	1.00	f
Kicked	"	2.00	2.00	f
Hit with an Object	"	3.00	3.00	f
Beaten Up	"	5.00	5.00	f
Choked	"	5.00	5.00	f
Knife or Gun Involved	"	8.00	8.00	f
Dominance/Control	"	$3.02^{*,2}$	$2.48^{*,2}$	e
Threatened	Threats of Harm	1.00	1.00	f
Knife or Gun Involved	"	0.63	1.21	f^1
Forced Sex	Sexual Abuse	1.00	1.00	f
Jealous	Dominance or Control	1.00	1.00	f
Contact Limited	"	1.00	1.00	f
Monitored	"	1.00	1.00	f
Limited to Finances	"	1.00	1.00	f
Called Names	Emotional Abuse	1.00	1.00	f
Occurred During Pregnancy	Physical Injury	0.25^{*}	0.19^{*}	e
Frequency	"	-0.01	-0.01	e
Thrown	"	$0.24^{*,2}$	0.06^{2}	e
Kicked	"	$0.45^{*,2}$	$0.95^{*,2}$	e
Hit with an Object	"	$0.22^{*,2}$	-0.06^{2}	e
Beaten Up	"	$0.88^{*,2}$	$0.46^{*,2}$	e
Knife or Gun Involved	"	$-0.36^{*,2}$	$-0.76^{*,2}$	e

(continued...)

(continued...)

Physical Abuse	"	0.04*	0.07*	e
Sexual Abuse	"	-0.22*	-0.14*	e
Occurred During Pregnancy	Psychopathology	0.11*	-0.06*	e
Frequency	"	0.03*	0.04*	e
Pushed	"	$0.25^{*,2}$	$0.34^{*,2}$	e
Contact Limited	"	$-0.21^{*,2}$	$-0.07^{*,2}$	e
Physical Abuse	"	-0.01*	-0.02*	e
Threats of Harm	"	0.19*	0.06*	e
Sexual Abuse	"	0.12*	-0.03	e
Dominance/Control	"	0.15*	0.20*	e
Emotional Abuse	"	0.20*	0.20*	e
Anger	"	$-0.15^{*,2}$	$-0.41^{*,2}$	e
Occurred During Pregnancy	Altered Psyche	0.11*	0.05	e
Frequency	"	0.05*	0.03*	e
Jealous	"	$-0.18^{*,2}$	$-0.16^{*,2}$	e
Limited to Finances	"	$-0.18^{*,2}$	-0.01^{2}	e
Physical Abuse	"	0.00	-0.01*	e
Threats of Harm	"	-0.03	0.09*	e
Sexual Abuse	"	0.02	-0.09*	e
Dominance/Control	"	0.11*	0.09*	e
Emotional Abuse	"	0.08*	0.11*	e
Occurred During Pregnancy	Anger	0.02	-0.03	e
Frequency	"	0.02*	-0.01*	e
Pushed	"	$0.19^{*,2}$	$0.27^{*,2}$	e
Physical Abuse	"	-0.01*	-0.01*	e
Threats of Harm	"	0.01	0.04*	e

(continued...)

Sexual Abuse	"	0.04	0.00	e
Dominance/Control	"	0.06*	0.06*	e
Emotional Abuse	"	0.07*	0.05*	e
Occurred During Pregnancy	Alcohol Use	-0.03*	0.01	e
Frequency	"	0.01*	0.01*	e
Knife or Gun Involved	"	$-0.15^{*,2}$	$-0.18^{*,2}$	e
Limited to Finances	"	$0.04^{*,2}$	$-0.02^{*,2}$	e
Physical Abuse	"	0.01*	0.01*	e
Threats of Harm	"	-0.00	-0.01	e
Sexual Abuse	"	0.04*	0.02	e
Dominance/Control	"	0.00	0.01*	e
Emotional Abuse	"	-0.00	0.05*	e
Psychopathology	"	$0.05^{*,2}$	$-0.07^{*,2}$	e
Altered Psyche	"	$0.03^{*,2}$	-0.00^{2}	e
Occurred During Pregnancy	Drug Use	-0.02	0.02	e
Frequency	"	0.01*	0.01*	e
Monitored	"	$0.04^{*,2}$	$0.03^{*,2}$	e
Limited to Finances	"	$0.08^{*,2}$	$0.03^{*,2}$	e
Physical Abuse	"	-0.00*	-0.00*	e
Threats of Harm	"	0.04*	0.03*	e
Sexual Abuse	"	0.02	0.02	e
Dominance/Control	"	0.01	0.02*	e
Emotional Abuse	"	0.02	0.03*	e
Physical Injury	"	$0.03^{*,2}$	0.01^{2}	e
Anger	"	$-0.11^{*,2}$	$-0.06^{*,2}$	e
Physician/Nurse	"	0.22*	0.10*	e

(continued...)

(continued...)

Occurred During Pregnancy	Physician/Nurse Support	0.02	0.07*	e
Frequency	"	0.02*	0.01*	e
Knife or Gun Involved	"	-0.21^{*,2}	-0.07^{*,2}	e
Physical Abuse	"	0.02*	0.01*	e
Threats of Harm	"	-0.01	0.03*	e
Sexual Abuse	"	0.09*	-0.04*	e
Dominance/Control	"	-0.02*	0.05*	e
Emotional Abuse	"	0.09*	-0.02	e
Physical Injury	"	0.03*	0.07*	e
Psychopathology	"	-0.00	-0.01	e
Altered Psyche	"	-0.04*	-0.01	e
Anger	"	-0.03*	-0.08*	e
Alcohol Use	"	-0.16*	-0.08*	e
Clergy	"	0.19^{*,2}	0.21^{*,2}	e
Occurred During Pregnancy	Informal Support	0.04*	0.07*	e
Frequency	"	0.02*	0.03*	e
Pushed	"	0.37^{*,2}	0.38^{*,2}	e
Monitored	"	0.19^{*,2}	0.19^{*,2}	e
Physical Abuse	"	-0.02*	-0.02*	e
Threats of Harm	"	0.26*	0.13*	e
Sexual Abuse	"	-0.01	0.00	e
Dominance/Control	"	0.10*	0.12*	e
Emotional Abuse	"	0.26*	0.22*	e
Physical Injury	"	-0.00	-0.02*	e
Psychopathology	"	-0.11*	-0.09*	e
Altered Psyche	"	-0.05*	-0.08*	e
Anger	"	-0.13*	-0.18*	e

(continued...)

(continued...)

Alcohol Use	"	0.06*	-0.07*	e
Drug Use	"	-0.21*	-0.20*	e
Occurred During Pregnancy	Clergy Support	0.05*	0.03*	e
Frequency	"	0.01*	0.01*	e
Choked	"	$-0.09^{*,2}$	$0.03^{*,2}$	e
Physical Abuse	"	0.01*	0.00*	e
Threats of Harm	"	-0.04*	0.01	e
Sexual Abuse	"	0.01	-0.02	e
Dominance/Control	"	0.00	0.01*	e
Emotional Abuse	"	0.02*	0.01	e
Physical Injury	"	-0.03*	-0.03*	e
Psychopathology	"	-0.01	0.01	e
Altered Psyche	"	-0.01	0.00	e
Anger	"	-0.01	-0.02	e
Alcohol Use	"	-0.08*	0.02	e
Drug Use	"	0.12*	0.02	e
Occurred During Pregnancy	Shelter Support	0.05*	0.00	e
Frequency	"	-0.01*	0.01*	e
Physical Abuse	"	0.01*	0.01*	e
Threats of Harm	"	-0.01	-0.05*	e
Sexual Abuse	"	0.03*	0.02*	e
Dominance/Control	"	-0.01*	-0.01	e
Emotional Abuse	"	0.02*	0.02*	e
Physical Injury	"	-0.03*	0.00	e
Psychopathology	"	0.01*	-0.01	e
Altered Psyche	"	0.03*	-0.01	e
Anger	"	-0.01	-0.03*	e

(continued...)

Alcohol Use	"	-0.04*	-0.01	e
Drug Use	"	0.08*	0.01	e
Clergy	"	-0.13^{*,2}	0.02^{2}	e
Occurred During Pregnancy	Counselling Support	0.00	-0.03*	e
Frequency	"	0.01*	0.01*	e
Knife or Gun Involved	"	-0.18^{*,2}	0.14^{*,2}	e
Contact Limited	"	0.11^{*,2}	0.07^{*,2}	e
Limited to Finances	"	0.06^{*,2}	0.02^{2}	e
Physical Abuse	"	0.00	-0.00	e
Threats of Harm	"	0.04*	-0.03*	e
Sexual Abuse	"	-0.04*	0.02	e
Dominance/Control	"	-0.01	0.01	e
Emotional Abuse	"	-0.01	0.06*	e
Physical Injury	"	-0.03*	-0.03*	e
Psychopathology	"	0.06*	0.02	e
Altered Psyche	"	0.04*	0.06*	e
Anger	"	0.01	0.01	e
Alcohol Use	"	-0.01	0.07*	e
Drug Use	"	0.04*	-0.04	e
Physician/Nurse	"	0.15^{*,2}	0.13^{*,2}	e
Clergy	"	0.10^{*,2}	-0.02^{2}	e
Shelter	"	0.18^{*,2}	0.32^{*,2}	e
Occurred During Pregnancy	Police Support	0.15*	0.14*	e
Frequency	"	0.01*	0.01*	e
Physical Abuse	"	0.02*	0.03*	e
Threats of Harm	"	0.03*	-0.01	e
Sexual Abuse	"	0.03*	-0.09*	e

(continued...)

Physical Injury	"	-0.04*	-0.06*	e
Psychopathology	"	-0.01	-0.02*	e
Altered Psyche	"	-0.03*	0.01	e
Anger	"	-0.08*	0.00	e
Alcohol Use	"	-0.17*	-0.10*	e
Drug Use	"	-0.04	0.08*	e
Household Income	Current Health Status	0.10*	0.12*	e
Education	"	0.05*	0.03*	e
Age	"	-0.09*	-0.07*	e
Physical Injury	"	-0.01	-0.04	e
Psychopathology	"	-0.09	-0.05	e
Altered Psyche	"	-0.01	-0.02	e
Anger	"	0.03	0.07	e
Alcohol Use	"	0.01	-0.07	e
Drug Use	"	-0.24*	-0.21	e
Physician/Nurse	"	-0.26*	-0.05	e
Informal Support	"	-0.01	-0.03	e
Clergy	"	-0.45*	-0.12	e
Shelter Support	"	-0.12	0.20	e
Counselling Support	"	0.02	-0.03	e
Police Support	"	0.22*	-0.04	e

[1] Fixed to equal the value estimated in Model 1.
[2] Coefficient arose as a modification to the basic model.
*$t > 2$.

We noted that 8 of 32 effects added to the initial model were not statistically significant in the validation model.[9] We incrementally deleted these effects from the model and re-estimated it, with the validation data set, to examine whether they made a significant contribution to the overall fit.[10] Each χ^2 difference test and the overall χ^2 difference test indicated that they did not ($\chi^2_{(8\ df)} = 9.21$, $p = .32$). We then turned our attention to three added effects that were significant in the validation model, but were estimated to be of the opposite direction to that estimated in the initial model.[11] In each of these cases, when the effect was deleted, the χ^2 difference test was significant (the range was from $\chi^2 = 4.38$, $p = .04$ to $\chi^2 = 185.13$, $p < .001$). Consequently, these three modifications were retained.

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[9] The eight modifications that were not significant in the validation model included: thrown on physical injury, hit with an object on physical injury, limited to finances on altered psyche, altered psyche on alcohol use, physical injury on drug use, clergy support on shelter support, limited to (continued...)

The final validation model, with eight effects deleted that may simply have been required in the initial model because of chance occurrences, resulted in $\chi^2_{(182\ df)} = 1,363.66$, $p < .001$, AGFI = .97) (see Figures 7A & 7B for final validation model).[12] Fifty-one (13.7%) standardized residuals exceeded ± 2.0. The largest standardized residual (-5.6) continued to be associated with the covariate pair *reported being beaten up* and *reported clergy support*. The implied correlation (.24) persisted in being .06 units greater than the observed correlation (.18). It is likely that, had we added a few effects to the validation model, we could have reduced or eliminated some of the discrepancies between the observed and implied covariance matrices. However, there is no way in which we could be certain that such effects were not responding to mere chance occurrences in the second half data set. Consequently, we decided to make no additions to the model. The LISREL estimates for the structural coefficients were essentially the same as those reported in Table 21 with the exception of 13 trivial departures.[13]

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[9](...continued)
finances on counselling suport, and clergy support on counselling support.

[10] Additional start values were provided because the current ones were immaterial once the effects were deleted.

[11] The effects, limited to finances on alcohol use and psychopathology on alcohol use were significant and positive in the initial model and significant and negative in the validation model. Knife or gun involvement on counselling support was significant and negative in the initial model and significant and positive in the validation model.

[12] A sample of 500 cases would have resulted in $\chi^2 = 170.37$, $p = .72$ and 600 cases would have resulted in $\chi^2 = 204.52$, $p = .12$.

[13] The base validation model resulted in the following coefficient estimates: kicked, bit, or hit with a fist on physical injury = .95; beaten up on physical injury = .46; contact limited on counselling = .07; monitored on drug use = .03; limited to finances on drug use = .03; sexual abuse on informal support = .00; dominance/control on drug use = .02; drug use on informal support = -.20; drug use on shelter support = .01; drug use on police support = .08; physician/nurse support on counselling support = .13; shelter support on counselling support = .32; and police support on current health status = -.04. On the other hand, the final validation model resulted in the following: kicked, bit, or hit with a fist on physical injury = .96; beaten up on physical injury = .45; contact limited on counselling = .06; monitored on drug use = .02; limited to finances on drug use = .02; sexual abuse on informal support = -.00; dominance/control on drug use = .01; drug use on informal support = -.19; drug use on shelter

(continued...)

In comparing the coefficient estimates for the initial model and the validation model, we find, for the most part, consistency in the magnitude and direction of the effects (see Table 21). However, some discrepancies are present. For example, we concluded, based on Model 2, that abuse that occurred during pregnancy led to psychopathology (.11 unstandardized and significant) (see Chapter 5). Yet, in the validation model, the effect from abuse during pregnancy to psychopathology was estimated to be -.06 and significant. Similarly, the frequency of abuse was found to have a positive and significant effect on anger (.02) in the initial model and a negative and significant effect in the validation model (-.01). Such a discrepancy was also found for frequency and shelter support: in the initial model the effect was -.01 (significant) and in the validation model it was .01 (significant). Additionally, the added effect from being choked to clergy support was -.09 in the initial model and .03 in the validation model.[14] Similar discrepancies are noted in the added effects from knife or gun involvement to counselling support (-.18 in the initial model and .14 in the validation model) and limited to finances to alcohol use (.04 in the initial model and -.02 in the validation model).[15] We had also concluded that threats of harm led to counselling support in the initial model (.04), however, we found a negative effect in the validation model (-.03) (both estimates were significant). Similarly, sexual abuse was initially reported to lead to physician/nurse support (.09) and police support (.03). However, in the validation model these two effects were found to be negative (-.04 and -.09, respectively). And, dominance or control was initially reported to not lead to physician/nurse support (-.02), yet was found to have a significant, positive effect in the validation model (.05).[16] Finally, psychopathology on alcohol use and alcohol use on informal support were found to have opposite effects in the two models (.05 and .06 in the initial model, respectively, and -.07 and -.07 in the validation model).

In summary, although there are some discrepancies between the two sets of coefficient estimates, including the situations where an estimate is statistically significant in one and not the other, or positive in one and negative in the other, we

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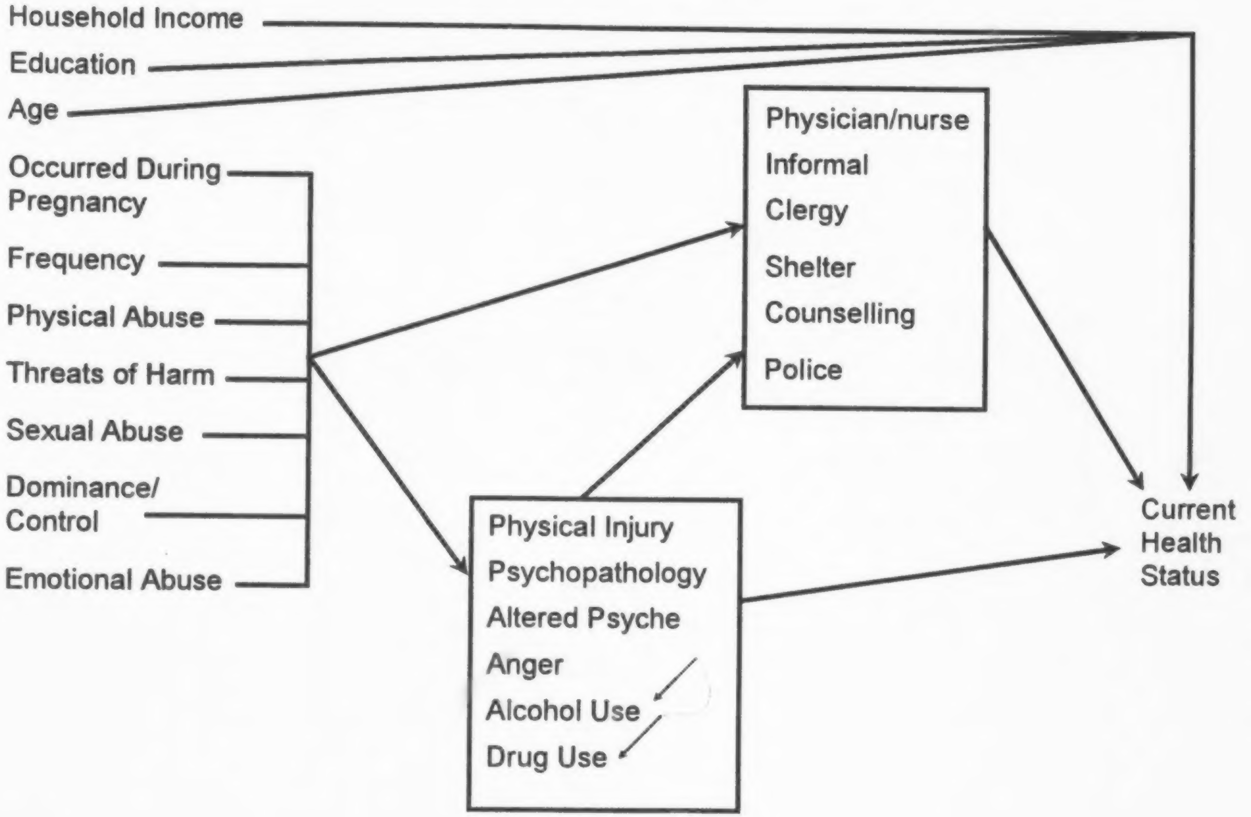
[13](...continued)
support = .00; drug use on police support = .07; physician/nurse support on counselling support = .12; shelter support on counselling support = .31; and police support on current health status = -.03.

[14] This discrepancy may not be as peculiar as it appears on first blush. If we consider the total effect of being choked on clergy support through two paths (one direct and the other indirect through physical abuse) we find that it is -.06 in the initial model and .04 in the validation model. The discrepancy may simply represent fluctuations around a value of zero.

[15] The total effect of limited to finances on alcohol use was .07 in the initial model and .00 in the validation model, suggesting that the discrepancy is merely a result of fluctuations around zero.

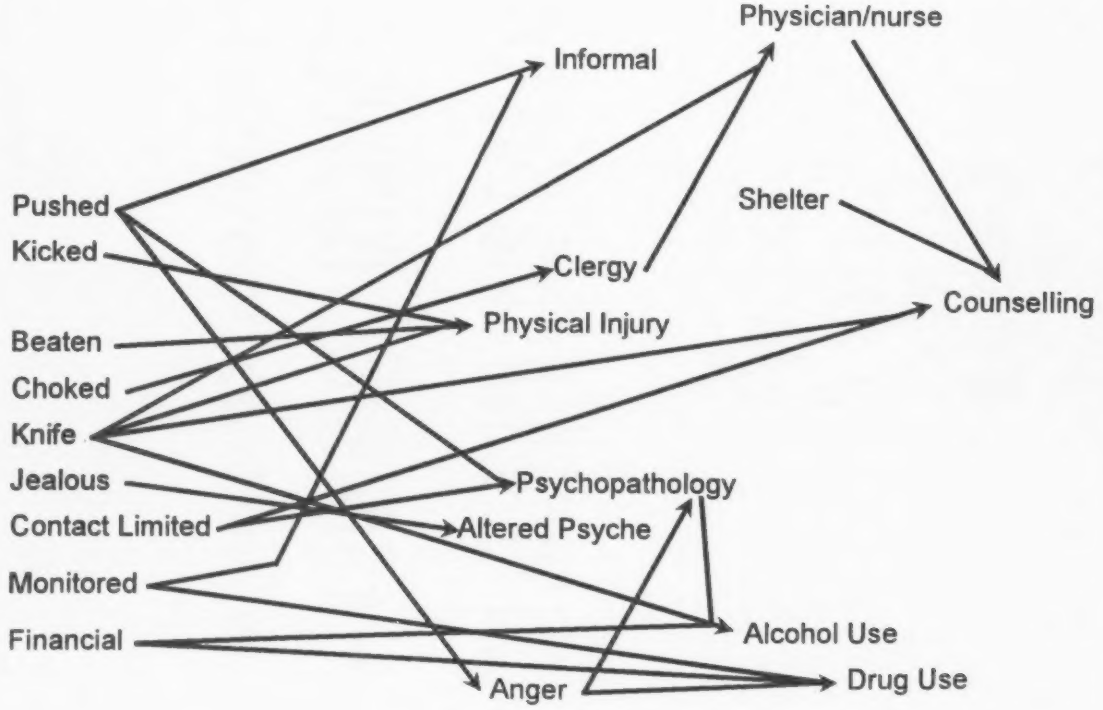
[16] A comparison of the total effects of dominance or control on physician/nurse support in the initial and validation models minimizes our concern about the discrepancy: .03 and .07, respectively.

Figure 7A: Validated Model 3: The Effectiveness of Societal Responses in Moderating the Health Consequences of Abuse


Household Income
Education
Age
Occurred During Pregnancy
Frequency
Physical Abuse
Threats of Harm
Sexual Abuse
Dominance/ Control
Emotional Abuse
Physician/nurse
Informal
Clergy
Shelter
Counselling
Police
Physical Injury
Psychopathology
Altered Psyche
Anger
Alcohol Use
Drug Use
Current Health Status

Note. Unless otherwise stated, an arrow indicates that all variables within a box influence each variable within the box to which the arrow is directed. Physical Injury is not caused by Threats of Harm, Dominance/Control, or Emotional Abuse. Dominance/Control and Emotional Abuse do not cause Police Support. Drug Use does not cause Physician/ Nurse Support, rather Physician/Nurse Support causes Drug Use.

Figure 7B: Validated Model 3: The Effectiveness of Societal Responses in Moderating the Health Consequences of Abuse


Physician/nurse
Informal
Pushed
Shelter
Kicked
Clergy
Counselling
Physical Injury
Beaten
Choked
Knife
Jealous
Psychopathology
Contact Limited
Altered Psyche
Monitored
Alcohol Use
Financial
Drug Use
Anger

Note. Added effect from Dominance/Control to Physical Abuse not shown.

are generally satisfied that the model fits both data sets reasonably well and that we are led to similar conclusions, regardless of the data set employed.[17]

Historical Trends

The revised Model 3 (which excludes the eight effects that contributed to the initial model's, and not the validation model's, fit) provides the opportunity to examine the historical development of the effectiveness of the selected societal responses. Accordingly, two additional models were estimated, one based on women whose last reported incident of abuse occurred within the year immediately preceding the survey and the other based on women whose last reported incident of abuse occurred more than 10 years prior to the survey.[18] The majority of authors reviewed have implicitly suggested that, with growing awareness of the problem of wife abuse, services have improved over time. Indeed, it is believed that some services that once served to further victimize abused women (exhibited a negative effect) should now have a positive effect, and those that were always effective in enhancing abused women's health status, should have stronger effects in recent years. Accordingly, these effects are compared across two time periods. Further, the determinants of help seeking behaviour are likely to have changed over time. As public education programs have developed and as societal attitudes have changed, it is plausible that different factors affect help seeking behaviour or that factors have diminished or magnified over time. Hence, these effects also are compared across the time periods.

Abuse Experienced Within One Year of the Survey

The Covariance Matrix

We pooled the two randomly selected half data sets then selected the 299 women who reported that their most recent incident of physical abuse, sexual abuse, or threats of harm occurred within the year preceding the survey interview and who completed the detailed portion of the survey. We added to this group 666 randomly selected women who denied experiencing any form of abuse. In so doing, we maintained the relative proportion of women who had been physically or sexually abused or threatened with harm at .31 of ever-married women (as observed in the complete data set). These 965 women constituted the sample from which the covariance matrix for the most recent time period was calculated. Pairwise deletion of missing cases was used in the creation of the variance/covariance matrix. The number of cases contributing to a covariance calculation ranged from 856 to 965 women. The smallest number of cases contributing to the calculation of any single covariance was specified as the sample size for the LISREL program.

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[17] See Appendix B for estimates of Model 3 based on a data set that combined the two half data sets.

[18] The reader should note that women who reported their latest incident of abuse to have occurred between one to ten years from the interview date are not considered in either of these models. The selection of the two relevant time periods (within one year and more than 10 years prior to the survey) provides for a very clear contrast. Accordingly, the estimates from the two models do not necessarily "average out" to the combined model. It is possible to find effects that are stronger or weaker in both models than in the combined model.

The LISREL Estimates

The revised Model 3, with this particular subset of women, produced a $\chi^2_{(182\ df)} = 681.27$, $p < .001$, AGFI = .93.[19] Few (5.9%) standardized residuals exceeded ± 2.0. However, those that did were of sufficient size to account for the large χ^2. The largest standardized residual (6.1) was associated with the covariate pair *reported clergy support* and *reported police support*. The observed correlation of .40 was much larger than the model-implied correlation of .27. We added an effect from clergy support to police support suspecting that this was the first indication that there is a time interaction at play. That is, in the recent past, the clergy have become more responsive to women who are abused and ensure that the police are informed of abusive situations. With this effect in place, the model obtained $\chi^2_{(181\ df)} = 624.84$, $p < .001$, AGFI = .94.[20] The model-implied correlation between *reported clergy support* and *reported police support* was .40, corresponding exactly to the observed correlation. Now, only 21 (5.7%) of the standardized residuals exceeded ± 2.0; the largest (3.8) was associated with the covariance between the indicators *reported counselling support* and *reported police support*. The observed correlation of .50 was unacceptably larger than the model-implied correlation of .41.

In order to improve the fit of the model, we added another effect: from police support to counselling support. With the advent of victims' assistance programs, there are mechanisms now in place in many Canadian localities to ensure that when the police investigate an assault, victims' assistance volunteers are notified to contact the victim and often make referrals to counselling services. With this effect, the model $\chi^2_{(180\ df)} = 608.01$, $p < .001$, AGFI = .94.[21] Although only 5.7% of the standardized residuals exceeded our level of tolerance (±2.0), we were dissatisfied with the AGFI and the χ^2 values. Consequently, we added one more effect among the sources of support, an effect from physician/nurse support to police support. The standardized residual for the covariate pair *reported police support* and *reported physician/nurse support* was 3.7; their observed correlation was .52 and the model-implied correlation was .44. We speculated that, in very recent years, physicians and nurses, particularly those in emergency services, are better informed about wife abuse and ensure that when women who have been abused seek their services, they also inform the police of the assault or encourage the women to report to the police.

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[19] A sample of 300 cases would have resulted in $\chi^2 = 238.25$, $p = .003$ and 400 cases would have resulted in $\chi^2 = 317.93$, $p < .001$.

[20] A sample of 300 cases would have resulted in $\chi^2 = 218.51$, $p = .03$ and 400 cases would have resulted in $\chi^2 = 291.59$, $p < .001$.

[21] A sample of 300 cases would have resulted in $\chi^2 = 212.63$, $p = .05$ and 400 cases would have resulted in $\chi^2 = 283.74$, $p < .001$.

The final model was reasonably well fit ($\chi^2_{(179\ df)} = 573.40$, $p < .001$, AGFI = .94.[22] Nineteen (5.1%) standardized residuals exceeded ±2.0; the largest (-3.7) suggested that the covariance between *reported being pushed, grabbed, or shoved* and *reported alcohol use* was overfit. The observed correlation was .25 and the model implied a correlation of .35. The model possessed no greater explanatory power than any of the previous models in relation to the variance in women's current health status (the $R^2 = 16.3\%$). This was surprising in that we expected to see the strongest effects among women who experienced abuse in the most recent past. However, there were sufficient differences in the LISREL estimates of the time-specific model compared to the final validation model to suggest that there was a time interaction operating (see Table 22). Accordingly, we estimated the final validation model for women who reported that their most recent incident of abuse occurred more than 10 years prior to the survey so that comparisons across the two time periods could be made.

Table 22 The Unstandardized Structural Coefficients of the Final Validation Model and the One Year Model

Cause	Effect	Final Validation Model	One Year Model	Fixed (f)/ Estimated (e)
Thrown	Severity of Physical Abuse	1.00	1.00	f
Pushed	"	1.00	1.00	f
Slapped	"	1.00	1.00	f
Kicked	"	2.00	2.00	f
Hit with an Object	"	3.00	3.00	f
Beaten Up	"	5.00	5.00	f
Choked	"	5.00	5.00	f
Knife or Gun Involved	"	8.00	8.00	f
Dominance/Control	"	2.50*	-0.16	e
Threatened	Threats of Harm	1.00	1.00	f
Knife or Gun Involved	"	1.21	1.21	f[1]

(continued...)

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[22] A sample of 300 cases would have resulted in $\chi^2 = 200.52$, $p = .13$ and 400 cases would have resulted in $\chi^2 = 267.59$, $p < .001$.

(continued...)

Forced Sex	Sexual Abuse	1.00	1.00	f
Jealous	Dominance or Control	1.00	1.00	f
Contact Limited	"	1.00	1.00	f
Monitored	"	1.00	1.00	f
Limited to Finances	"	1.00	1.00	f
Called Names	Emotional Abuse	1.00	1.00	f
Occurred During Pregnancy	Physical Injury	0.19*	0.49*	e
Frequency	"	-0.01	-0.01	e
Kicked	"	0.96*	0.72*	e
Beaten Up	"	0.45*	-0.26	e
Knife or Gun Involved	"	-0.76*	-1.38*	e
Physical Abuse	"	0.07*	0.18*	e
Sexual Abuse	"	-0.14*	-0.08	e
Occurred During Pregnancy	Psychopathology	-0.06*	-0.12	e
Frequency	"	0.04*	0.06*	e
Pushed	"	0.34*	0.36*	e
Contact Limited	"	-0.07*	0.00	e
Physical Abuse	"	-0.02*	-0.03*	e
Threats of Harm	"	0.06*	0.46*	e
Sexual Abuse	"	-0.03	0.16	e
Dominance/Control	"	0.20*	-0.00	e
Emotional Abuse	"	0.20*	0.11	e
Anger	"	-0.41*	-0.15*	e
Occurred During Pregnancy	Altered Psyche	0.05	-0.19*	e
Frequency	"	0.03*	0.05*	e
Jealous	"	-0.16*	-0.21*	e

(continued...)

(continued...)

Physical Abuse	"	-0.01*	0.02*	e
Threats of Harm	"	0.09*	0.16*	e
Sexual Abuse	"	-0.09*	-0.03	e
Dominance/Control	"	0.09*	0.09*	e
Emotional Abuse	"	0.11*	-0.12*	e
Occurred During Pregnancy	Anger	-0.03	0.09*	e
Frequency	"	-0.01*	-0.01	e
Pushed	"	0.27*	0.36*	e
Physical Abuse	"	-0.01*	-0.01*	e
Threats of Harm	"	0.04*	-0.02	e
Sexual Abuse	"	0.00	-0.09	e
Dominance/Control	"	0.06*	0.02	e
Emotional Abuse	"	0.05*	0.19*	e
Occurred During Pregnancy	Alcohol Use	0.01	-0.04	e
Frequency	"	0.01*	0.02*	e
Knife or Gun Involved	"	-0.18*	-0.35*	e
Limited to Finances	"	-0.02*	0.06	e
Physical Abuse	"	0.01*	0.01*	e
Threats of Harm	"	-0.01	0.06	e
Sexual Abuse	"	0.02	0.08*	e
Dominance/Control	"	0.01*	-0.01	e
Emotional Abuse	"	0.05*	-0.08*	e
Psychopathology	"	-0.07*	0.05*	e
Occurred During Pregnancy	Drug Use	0.02*	-0.08*	e
Frequency	"	0.01*	0.02*	e
Monitored	"	0.02	0.13*	e

(continued...)

Limited to Finances	"	0.02*	0.13*	e
Physical Abuse	"	-0.00*	0.01*	e
Threats of Harm	"	0.03*	-0.00	e
Sexual Abuse	"	0.02	0.05	e
Dominance/Control	"	0.01*	-0.04*	e
Emotional Abuse	"	0.03*	-0.02	e
Anger	"	-0.06*	-0.03	e
Physician/Nurse	"	0.10*	-0.04	e
Occurred During Pregnancy	Physician/Nurse Support	0.07*	-0.08*	e
Frequency	"	0.01*	0.02*	e
Knife or Gun Involved	"	-0.07*	-0.14	e
Physical Abuse	"	0.01*	0.01	e
Threats of Harm	"	0.03*	0.01	e
Sexual Abuse	"	-0.04*	0.12*	e
Dominance/Control	"	0.05*	-0.01	e
Emotional Abuse	"	-0.02	-0.00	e
Physical Injury	"	0.07*	0.11*	e
Psychopathology	"	-0.01	0.02	e
Altered Psyche	"	-0.01	-0.01	e
Anger	"	-0.08*	-0.04	e
Alcohol Use	"	-0.08*	-0.10*	e
Clergy	"	0.21*	0.41*	e
Occurred During Pregnancy	Informal Support	0.07*	0.12*	e
Frequency	"	0.03*	0.03*	e
Pushed	"	0.38*	0.41*	e
Monitored	"	0.19*	0.25*	e
Physical Abuse	"	-0.02*	-0.00	e

(continued...)

Threats of Harm	"	0.13*	0.05	e
Sexual Abuse	"	-0.00	-0.07	e
Dominance/Control	"	0.12*	-0.03	e
Emotional Abuse	"	0.22*	0.15*	e
Physical Injury	"	-0.02*	-0.04*	e
Psychopathology	"	-0.09*	0.06*	e
Altered Psyche	"	-0.08*	0.06*	e
Anger	"	-0.18*	0.03	e
Alcohol Use	"	-0.07*	0.19*	e
Drug Use	"	-0.19*	-0.01	e
Occurred During Pregnancy	Clergy Support	0.03*	0.01	e
Frequency	"	0.01*	0.02*	e
Choked	"	0.03*	-0.06	e
Physical Abuse	"	0.00*	0.01*	e
Threats of Harm	"	0.01	-0.05*	e
Sexual Abuse	"	-0.02	0.07*	e
Dominance/Control	"	0.01*	-0.00	e
Emotional Abuse	"	0.01	-0.04	e
Physical Injury	"	-0.03*	-0.01	e
Psychopathology	"	0.01	-0.01	e
Altered Psyche	"	0.00	0.00	e
Anger	"	-0.02*	0.00	e
Alcohol Use	"	0.02	-0.04	e
Drug Use	"	0.02	-0.05	e
Occurred During Pregnancy	Shelter Support	0.00	0.03	e
Frequency	"	0.01*	-0.01	e
Physical Abuse	"	0.01*	0.04*	e

(continued...)

Threats of Harm	"	-0.05*	-0.02	e
Sexual Abuse	"	0.02*	-0.02	e
Dominance/Control	"	-0.01	-0.03*	e
Emotional Abuse	"	0.02*	0.08*	e
Physical Injury	"	0.00	-0.05*	e
Psychopathology	"	-0.01	-0.01	e
Altered Psyche	"	-0.01	-0.01	e
Anger	"	-0.03*	-0.05*	e
Alcohol Use	"	-0.01	0.13*	e
Drug Use	"	0.00	-0.10*	e
Occurred During Pregnancy	Counselling Support	-0.03*	0.12*	e
Frequency	"	0.01*	-0.03*	e
Knife or Gun Involved	"	0.14*	-0.26*	e
Contact Limited	"	0.06*	0.11	e
Physical Abuse	"	-0.00	0.01	e
Threats of Harm	"	-0.03*	0.10*	e
Sexual Abuse	"	0.02	0.04	e
Dominance/Control	"	0.01	0.03	e
Emotional Abuse	"	0.06*	0.14*	e
Physical Injury	"	-0.03*	-0.06*	e
Psychopathology	"	0.02	0.03	e
Altered Psyche	"	0.06*	0.07*	e
Anger	"	0.01	-0.06*	e
Alcohol Use	"	0.07*	0.06	e
Drug Use	"	-0.04	-0.06	e
Physician/Nurse Support	"	0.12*	0.17*	e
Shelter Support	"	0.31*	0.11	e
Police Support	"	N.E.[2]	0.22*	e

(continued...)

Occurred During Pregnancy	Police Support	0.14*	0.17*	e
Frequency	"	0.01*	0.00	e
Physical Abuse	"	0.03*	0.03*	e
Threats of Harm	"	-0.01	0.06*	e
Sexual Abuse	"	-0.09*	-0.04	e
Physical Injury	"	-0.06*	-0.08*	e
Psychopathology	"	-0.02*	-0.02	e
Altered Psyche	"	0.01	-0.00	e
Anger	"	0.00	-0.02	e
Alcohol Use	"	-0.10*	-0.03	e
Drug Use	"	0.07*	-0.04	e
Physician/Nurse Support	"	N.E.[2]	0.22*	e
Clergy Support	"	N.E.[2]	0.33*	e
Household Income	Current Health Status	0.12*	0.13*	e
Education	"	0.03*	0.03*	e
Age	"	-0.07*	-0.09*	e
Physical Injury	"	-0.04	-0.01	e
Psychopathology	"	-0.05	-0.08	e
Altered Psyche	"	-0.02	-0.14	e
Anger	"	0.07	-0.03	e
Alcohol Use	"	-0.07	-0.02	e
Drug Use	"	-0.21	0.04	e
Physician/Nurse Support	"	-0.05	-0.36	e
Informal Support	"	-0.02	0.05	e
Clergy Support	"	-0.12	-0.77*	e
Shelter Support	"	0.20	0.65*	e

(continued...)

Counselling Support	"	-0.03	0.00	e
Police Support	"	-0.03	0.13	e

[1]Fixed to equal the value estimated in Model 1.
[2]Not estimated (i.e., fixed at 0).
*$t > 2$.

Abuse Experienced More Than Ten Years Prior to the Survey

The Covariance Matrix

As before, with the two randomly selected half data sets pooled, we selected the 744 women who reported that their most recent incident of physical abuse, sexual abuse, or threats of harm occurred more than 10 years prior to the survey and who completed the detailed portion of the survey. We added to this group 1,656 randomly selected women who denied experiencing any form of abuse.[23] In so doing, we persisted in maintaining the relative proportion of women who had been physically or sexually abused or threatened with harm at .31 of ever-married women. These 2,400 women constituted the sample from which the covariance matrix for the second time-specific (> 10 years) model was calculated. Pairwise deletion of missing cases was used in the creation of the variance/covariance matrix. The number of cases contributing to a covariance calculation ranged from 2,091 to 2,400 women. The smallest number of cases contributing to the calculation of any single covariance was specified as the sample size for the LISREL program.

The LISREL Estimates

The revised Model 3, with the subset of women who had experienced their last incident of abuse more than 10 years prior to the survey, obtained $\chi^2_{(182\ df)} = 868.20$, $p < .001$, AGFI = .96.[24] Thirty-one (8.4%) standardized residuals exceeded ± 2.0. As in the previous one year model, the largest standardized residual (6.1) was associated with the covariate pair *reported clergy support* and *reported police support*. The observed correlation of .29 was larger than the model-implied correlation of .20. We added an effect from clergy support to police support. We acknowledge that the presence of this effect requires a slight alteration to our explanation of the time interaction. We initially had anticipated that this model would not require this effect. With its presence, the interaction remains operative but only in that the magnitude of the effects differ from one time to the other.[25] With this effect in place, the model obtained $\chi^2_{(181\ df)} = 818.56$, $p < .001$, AGFI = .97.[26] Now, only 30 (8.1%) of the standardized residuals exceeded ± 2.0 and we normally would have accepted this model as a reasonably well fit model. However, the standardized residual for *reported physician/nurse support* and *reported police support* was 3.6. Because we had added an effect from physician/nurse support to police support in the first time-specific model, we decided, for comparative purposes, to add the same effect to the current model.[27]

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[23] The women free of abuse who were randomly selected for the first time-specific variance/covariance matrix were replaced prior to the random selection of non-abused women for the second time-specific variance/covariance matrix.

[24] A sample of 300 cases would have resulted in $\chi^2 = 124.21$, $p = 1.00$ and 400 cases would have resulted in $\chi^2 = 165.75$, $p = .80$.

The final model was reasonably well fit ($\chi^2_{(180\ df)} = 779.95$, $p < .001$, AGFI = .97.[28] Twenty-six (7.0%) standardized residuals exceeded ±2.0; the largest (5.2) suggested that the covariance between *reported psychopathology* and *reported alterations to the psyche* was underfit. The observed correlation was .29 and the model-implied correlation was .20. This model, of all the models, provided the greatest explanation of the variance in current health status (R^2 = 18.9%).

Several noteworthy differences were found between the two time-specific models and among the four final models: initial Model 3, validation Model 3 and the two time-specific models (see Tables 21 and 23). First, the effect from dominance or control on the severity of physical abuse was strong and statistically significant in the initial and validation models (estimated unstandardized effects were 3.0 and 2.5, respectively) and was statistically insignificant in the time-specific models (-0.2 and 0.4). We cannot account for this inconsistency.

Second, the reader should not be misled by the apparent differences in magnitude among the added direct effects from the causal indicators of severity of physical abuse and dominance or control to the immediate health responses or to the sources of support. The differences are far less marked when one considers the total effects. For example, the direct effect from being beaten up to physical injury is estimated to be 0.88, 0.46, -0.26, and 0.59 in the four models.[29] The total effect of being beaten up on physical injury (adding the indirect effect through severity of physical abuse) is estimated to be 1.08, 0.81, 0.64, and 1.04 in the four models; and if we treat the insignificant direct effect as zero, the total effects are even more comparable: 1.08, 0.81, 0.90, and 1.04. These estimates suggest that, regardless of when the abuse occurred, if a woman is beaten up, the severity of the physical injury incurred increases by approximately a full unit.

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[25] The reader may rightly wonder why the effect from clergy support to police support was not present in either the initial Model 3 or the validation Model 3 but is present in both time-specific models. In the initial Model 3, the standardized residual for *reported clergy support* and *reported police support* was 0.6 indicating that the covariate pair was well fit by the model and no effect was necessary. In the validation Model 3, the standardized residual for the relevant covariate pair was 3.0 (the observed correlation was .28 and the model-implied correlation was .25), suggesting that, if added, a weak effect would have been estimated. We did not add the effect to the validation model because the evidence was not particularly compelling and there was no way of knowing whether we were merely responding to a sampling fluctuation.

[26] A sample of 400 cases would have resulted in $\chi^2 = 156.27$, $p = .91$ and 500 cases would have resulted in $\chi^2 = 195.44$, $p = .22$.

[27] It is noteworthy that there was no indication that an effect from physician/nurse support to police support would improve the fit of either the initial Model 3 or the validation Model 3 (the standardized residuals for the corresponding covariate pair, *reported physician/nurse support* and *reported police support* were 1.5 and 1.1, respectively).

[28] A sample of 400 cases would have resulted in $\chi^2 = 148.90$, $p = .96$ and 500 cases would have resulted in $\chi^2 = 186.22$, $p = .36$.

Table 23 The Unstandardized Structural Coefficients of the Time-Specific Models

Cause	Effect	Last Incident Within Previous Year	Last Incident More Than 10 Years Ago	Fixed (f)/ Estimated (e)
Thrown	Severity of Physical Abuse	1.00	1.00	f
Pushed	"	1.00	1.00	f
Slapped	"	1.00	1.00	f
Kicked	"	2.00	2.00	f
Hit with an Object	"	3.00	3.00	f
Beaten Up	"	5.00	5.00	f
Choked	"	5.00	5.00	f
Knife or Gun Involved	"	8.00	8.00	f
Dominance/Control	"	-0.16	0.41	e
Threatened	Threats of Harm	1.00	1.00	f
Knife or Gun Involved	"	1.21	1.21	f[1]
Forced Sex	Sexual Abuse	1.00	1.00	f
Jealous	Dominance or Control	1.00	1.00	f
Contact Limited	"	1.00	1.00	f
Monitored	"	1.00	1.00	f

(continued...)

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[29] Only the negative effect, -0.26, estimated in the model in which the last incident occurred within the previous year, was statistically insignificant.

(continued...)

Limited to Finances	"	1.00	1.00	f
Called Names	Emotional Abuse	1.00	1.00	f
Occurred During Pregnancy	Physical Injury	0.49*	0.28*	e
Frequency	"	-0.01	-0.01	e
Kicked	"	0.72*	0.80*	e
Beaten Up	"	-0.26	0.59*	e
Knife or Gun Involved	"	-1.38*	-0.53*	e
Physical Abuse	"	0.18*	0.09*	e
Sexual Abuse	"	-0.08	0.27*	e
Occurred During Pregnancy	Psychopathology	-0.12	0.07	e
Frequency	"	0.06*	0.04*	e
Pushed	"	0.36*	0.30*	e
Contact Limited	"	0.00	-0.22*	e
Physical Abuse	"	-0.03*	0.01*	e
Threats of Harm	"	0.46*	-0.06	e
Sexual Abuse	"	0.16*	0.15*	e
Dominance/Control	"	-0.00	0.11*	e
Emotional Abuse	"	0.11	0.09*	e
Anger	"	-0.15*	-0.29*	e
Occurred During Pregnancy	Altered Psyche	-0.19*	0.08*	e
Frequency	"	0.05*	0.08*	e
Jealous	"	-0.21*	-0.15*	e
Physical Abuse	"	0.02*	0.01*	e
Threats of Harm	"	0.16*	-0.09*	e
Sexual Abuse	"	-0.03	-0.08	e
Dominance/Control	"	0.09*	-0.01	e

(continued...)

Emotional Abuse	"	-0.12*	0.06	e
Occurred During Pregnancy	Anger	0.09*	0.07*	e
Frequency	"	-0.01	0.00	e
Pushed	"	0.36*	0.23*	e
Physical Abuse	"	-0.01*	-0.00	e
Threats of Harm	"	-0.02	0.01	e
Sexual Abuse	"	-0.09	0.11*	e
Dominance/Control	"	0.02	0.04*	e
Emotional Abuse	"	0.19*	-0.09*	e
Occurred During Pregnancy	Alcohol Use	-0.04	0.04*	e
Frequency	"	0.02*	0.02*	e
Knife or Gun Involved	"	-0.35*	-0.16*	e
Limited to Finances	"	0.06	-0.07*	e
Physical Abuse	"	0.01*	0.01*	e
Threats of Harm	"	0.06	-0.04*	e
Sexual Abuse	"	0.08*	0.02	e
Dominance/Control	"	-0.01	0.02*	e
Emotional Abuse	"	-0.08*	0.02	e
Psychopathology	"	0.05*	-0.02	e
Occurred During Pregnancy	Drug Use	-0.08*	-0.01	e
Frequency	"	0.02*	0.01*	e
Monitored	"	0.13*	0.11*	e
Limited to Finances	"	0.13*	0.07*	e
Physical Abuse	"	0.01*	0.00*	e
Threats of Harm	"	-0.00	-0.03	e
Sexual Abuse	"	0.05	-0.01	e

(continued...)

Dominance/Control	"	-0.04*	-0.02	e
Emotional Abuse	"	-0.02	0.02	e
Anger	"	-0.03	-0.08*	e
Physician/Nurse	"	-0.04	0.25*	e
Occurred During Pregnancy	Physician/Nurse Support	-0.08*	0.08*	e
Frequency	"	0.02*	0.00	e
Knife or Gun Involved	"	-0.14	-0.09	e
Physical Abuse	"	0.01	0.01	e
Threats of Harm	"	0.01	0.04	e
Sexual Abuse	"	0.12*	0.02	e
Dominance/Control	"	-0.01	0.04*	e
Emotional Abuse	"	-0.00	0.02	e
Physical Injury	"	0.11*	0.10*	e
Psychopathology	"	0.02	0.00	e
Altered Psyche	"	-0.01	0.01	e
Anger	"	-0.04	0.00	e
Alcohol Use	"	-0.10*	-0.07*	e
Clergy	"	0.41*	0.30*	e
Occurred During Pregnancy	Informal Support	0.12*	0.07*	e
Frequency	"	0.03*	0.02*	e
Pushed	"	0.41*	0.30*	e
Monitored	"	0.25*	0.03	e
Physical Abuse	"	-0.00	-0.02*	e
Threats of Harm	"	0.05	0.20*	e
Sexual Abuse	"	-0.07	0.13*	e
Dominance/Control	"	-0.03	0.04*	e
Emotional Abuse	"	0.15*	0.05	e

(continued...)

Physical Injury	"	-0.04*	0.04*	e
Psychopathology	"	0.06*	0.08*	e
Altered Psyche	"	0.06*	0.03	e
Anger	"	0.03	-0.04	e
Alcohol Use	"	0.19*	0.02	e
Drug Use	"	-0.01	-0.08*	e
Occurred During Pregnancy	Clergy Support	0.01	0.05*	e
Frequency	"	0.02*	0.01*	e
Choked	"	-0.06	-0.02	e
Physical Abuse	"	0.01*	-0.01*	e
Threats of Harm	"	-0.05*	0.05*	e
Sexual Abuse	"	0.07*	0.03	e
Dominance/Control	"	-0.00	0.02*	e
Emotional Abuse	"	-0.04	0.04*	e
Physical Injury	"	-0.01	-0.00	e
Psychopathology	"	-0.01	0.02	e
Altered Psyche	"	0.00	0.02	e
Anger	"	0.00	-0.02	e
Alcohol Use	"	-0.04	0.00	e
Drug Use	"	-0.05	0.07*	e
Occurred During Pregnancy	Shelter Support	0.03	0.01	e
Frequency	"	-0.01	0.00	e
Physical Abuse	"	0.04*	0.00*	e
Threats of Harm	"	-0.02	-0.02*	e
Sexual Abuse	"	-0.02	0.02	e
Dominance/Control	"	-0.03*	0.00	e
Emotional Abuse	"	0.08*	-0.00	e

(continued...)

Physical Injury	"	-0.05*	-0.00	e
Psychopathology	"	-0.01	-0.01	e
Altered Psyche	"	-0.01	0.01	e
Anger	"	-0.05*	-0.02*	e
Alcohol Use	"	0.13*	-0.03*	e
Drug Use	"	-0.10*	0.06*	e
Occurred During Pregnancy	Counselling Support	0.12*	0.00	e
Frequency	"	-0.03*	0.03*	e
Knife or Gun Involved	"	-0.26*	0.09*	e
Contact Limited	"	0.11	0.13*	e
Physical Abuse	"	0.01	-0.01*	e
Threats of Harm	"	0.10*	-0.03	e
Sexual Abuse	"	0.04	-0.03	e
Dominance/Control	"	0.03	-0.03*	e
Emotional Abuse	"	0.14*	0.01	e
Physical Injury	"	-0.06*	-0.01	e
Psychopathology	"	0.03	0.03*	e
Altered Psyche	"	0.07*	0.05*	e
Anger	"	-0.06*	0.00	e
Alcohol Use	"	0.06	0.03	e
Drug Use	"	-0.06	0.04	e
Physician/Nurse Support	"	0.17*	0.19*	e
Shelter Support	"	0.11	0.28*	e
Police Support	"	0.22*	N.E.[2]	e
Occurred During Pregnancy	Police Support	0.17*	0.19*	e
Frequency	"	0.00	0.01*	e
Physical Abuse	"	0.03*	0.02*	e

(continued...)

Threats of Harm	"	0.06*	0.00	e
Sexual Abuse	"	-0.04	0.03	e
Physical Injury	"	-0.08*	-0.04*	e
Psychopathology	"	-0.02	-0.02	e
Altered Psyche	"	-0.00	-0.02	e
Anger	"	-0.02	-0.03	e
Alcohol Use	"	-0.03	-0.09*	e
Drug Use	"	-0.04	-0.03	e
Physician/Nurse Support	"	0.22*	0.17*	e
Clergy Support	"	0.33*	0.17*	e
Household Income	Current Health Status	0.13*	0.13*	e
Education	"	0.03*	0.04*	e
Age	"	-0.09*	-0.07*	e
Physical Injury	"	-0.01	-0.02	e
Psychopathology	"	-0.08	-0.06	e
Altered Psyche	"	-0.14	-0.06	e
Anger	"	-0.03	-0.01	e
Alcohol Use	"	-0.02	0.03	e
Drug Use	"	0.04	-0.56*	e
Physician/Nurse Support	"	-0.36	-0.02	e
Informal Support	"	0.05	0.08	e
Clergy Support	"	-0.77*	-0.03	e
Shelter Support	"	0.65*	-0.07	e
Counselling Support	"	0.00	-0.35*	e
Police Support	"	0.13	0.02	e

[1] Fixed to equal the value estimated in Model 1.

[2] Not estimated (i.e., fixed at 0).

*$t > 2$.

There is some evidence that the determinants of abused women's help-seeking behaviour have changed over time. For example, women who were sexually abused more than 10 years ago were not likely to engender the support of physicians or nurses. However, sexual abuse committed by a male partner within the 12 months preceding the survey increased abused women's likelihood of enlisting the support of physicians or nurses by .12 units. Conversely, women who were subjected to the dominance or control of their male partner over a decade ago were likely to contact their physicians or nurses (unstandardized effect = 0.04); however, in the recent past, exposure to dominance or control is not a determinant of physician/nurse support (unstandardized effect = -0.01). Consider the effects of the nature of the abuse experienced and the triggering of the selected sources of support. More than 10 years ago, women who were subjected to threats of harm were likely to contact relatives, friends, and the clergy and not counselling support services or the police. However, exposure to threats of harm within the immediately preceding year did not lead to these two former sources of support, rather, these women were likely to solicit the support of counsellors and the police. Similarly, women who were sexually abused more than 10 years ago solely sought the support of their relatives or friends. In the recent past, women who are sexually abused are likely to seek the support of physicians, nurses, and the clergy. Sexual abuse does not lead, and apparently has never led, to the support offered by shelters, counsellors, or the police. And, a decade ago, women who were emotionally abused were often led to seek the support offered by their clergy. Today, this kind of abuse leads women to access the support of family members, friends, shelter staff, and counsellors. Many factors may account for these noted changes. First, there is a greater awareness today that abuse is not acceptable, that women do not have to tolerate it, that it is not "normal," and that there are services available to assist women. Second, there has been a significant advancement in the availability of support services and in the education of professionals who are in key positions to identify abused women and to offer support. However, is there evidence that these services improve the health of abused women and has their effectiveness changed over time?

Ideally, of the women whose last incident of abuse occurred more than 10 years ago, we would like to know what their health status was one year following the last incident. Unfortunately, that data was not collected in the VAWS. Consequently, the reader is advised that the following observations relate to the current health status of women who were abused one year ago, and who did or did not receive the support of particular services, and the current health status of women who were abused more than 10 years ago, and who did or did not receive support services.

As in the initial Model 3 reported in Chapter 6, four of the six total effects of the sources of support on current health status are negative in the model for women abused more than 10 years ago. In contrast, only two of the six total effects of the selected sources of support on current health status are negative in the model for women abused within the previous year (see Table 24). The indirect effects that are operative because some sources of support refer abused women to other sources of support do not modify the direct effects substantially (note that the total effects are very similar to the direct effects reported in Table 23). For example, among women who have been abused within the year immediately preceding the survey, those who contacted their clergy members resulted in a health status score that was about three-quarters of a unit lower than those women who did not seek such "support." This time-specific model also suggests that the clergy tend to refer abused women to physicians or nurses, who also have an adverse effect on abused women's health, and to the police, who have a positive effect. In total, the direct and indirect effects of the clergy's involvement result in abused women having almost a full unit drop in their health status (unstandardized total effect is -0.86).

Table 24 The Total Effects of the Selected Sources of Support on Current Health Status in the Time-Specific Models

Source of Support	Last Incident Within Previous Year Unstandardized (Standardized)	Last Incident More Than 10 Years Ago Unstandardized (Standardized)
Physician/Nurse Support	-0.34 (-0.09)	-0.23 (-0.06)
Informal Support	0.05 (0.02)	0.08 (0.03)
Clergy Support	-0.86 (-0.11)	-0.09 (-0.01)
Shelter Support	0.65 (0.11)	-0.17 (-0.01)
Counselling Support	0.00 (0.00)	-0.35 (-0.06)
Police Support	0.13 (0.03)	0.02 (0.00)

In each case where we have suggested that a negative effect from a source of support to women's current healths status is indicative of improper or inadequate intervention, we cannot be sure that there is not a selection or recall bias at work. For example, those women who seek the assistance of the clergy may be predisposed to poorer health for some reason. Similarly, contact with health professionals may cause abused women to make more explicit reports of their specific health responses (e.g., health professionals may advise women of consequences that they themselves had not noted). Selection bias, if operative, is not a result of more severe physical abuse, exposure to sexual abuse, threats of harm, dominance or control, or emotional abuse, and nor is it a result of more serious injuries, psychopathology, altered psyches, anger, or alcohol or drug use.

In the time-specific model that examines the effects among women who were last abused more than 10 years ago, some of the total effects are greater in magnitude than the direct effects. For example, the negative effect of physician or nurse involvement on current health status is marginal (-0.02). However, because these health professionals tended to refer abused women to counsellors, who also had a negative effect, the total effect of physicians or nurses is noteworthy. Abused women who sought the assistance of health professionals more than 10 years ago, either because of the abuse they experienced or their immediate health responses, have health status scores that are about one-quarter of a unit lower than women who did not have contact with these professionals. Similarly, those women who sought the aid of shelter staff have poorer health today than those women who did not seek the assistance of shelters. Again, this adverse effect occurred, in part, because of the negative effect caused by counsellors, who abused women were often referred to by shelter staff.

Over time, we note that there has been some improvement in the effect of having contact with shelter staff, the police, and counsellors on abused women's health. In particular, if an abused woman contacted a shelter 10 or more years ago, her health at the time of the survey was poorer than if she had not. However, those women who had been in contact with a shelter in the year preceding the survey had better health than those who did not. Additionally, those abused women who came into contact with the police 10 or more years ago sustained a small, if appreciable, positive effect on their health. However, those abused women who were in contact with the police at some time within the year preceding the survey resulted in better health than those abused women who did not acquire police involvement. Finally, as noted previously, contact with counsellors more than a decade ago resulted in an adverse health consequence. Today, contact with a counsellor seems to have no effect on an abused woman's health status.

The health consequence of the support that is offered informally (that offered by friends and relatives) is positive, albeit marginal, and does not seem to have changed over the past 10 years. However, the effects of health professionals and the clergy are negative, and have become more pronounced over time. This finding is troubling and possibly can be explained by the observation that abused women's expectations have changed over the past decade. It is likely that they no longer accept the type of advice that commends them to remain in an abusive relationship, or that in any way suggests that they are responsible for their partner's abusive behaviour and that they are the ones required to change. These were messages typically relayed to abused women and may still be relayed by the clergy and health professionals. One promising finding related to the role of health professionals is that, although they once seemed to influence whether abused women took drugs or medications as a means of coping, they no longer have this effect. Additionally, although drug use formerly had a negative effect on women's health, those women who took drugs or medications within the year prior to the survey had no alterations in their health. This may indicate that the type of drugs used has changed; perhaps physicians have ceased prescribing drugs that have negative effects on abused women's health status.

Chapter 8

Discussion

This final chapter provides a discussion of some of the possible limitations associated with the study, an overview of its major findings, and some comments regarding the implications of the findings, particularly in relation to our current understanding of wife abuse and our most commonly recommended interventions.

Limitations

Most of this study's identified limitations arise from the constraints of the available data set and our decisions about how best to conceptualize the relevant concepts and to construct their corresponding indicators. In particular, there are two instances where the meaning of a concept is somewhat obfuscated because of the way in which the respondents' answers to the survey questions were coded by Statistics Canada. First, answers to the question, "Have you ever used alcohol, drugs or medication to help you cope with this experience?" were coded: 1 = alcohol, 2 = drugs/medication, 3 = both, and 4 = neither. Consequently, we could not distinguish illicit drug use from medically prescribed medication use. We have conceptualized the concept, drug use, as a propensity to rely on substances as a means of coping.[1] However, a distinction between illicit drug use and medically prescribed medication may have provided a clearer understanding of the role of physicians and nurses in encouraging the use of substances, whether such use influenced the help-seeking behaviour of abused women, or the long-term health consequences of such use. Second, the questions, "Did you (ever) see a doctor or nurse for your injuries?" and "Did you ever talk to anyone about what happened, such as...doctor?" necessitated the combining of physician and nursing services. Thus, the concept is best viewed as contact with health professionals. This may be problematic in that physician and nursing services are different kinds of services, the former is male-dominated and the latter female-dominated, and they are likely to result in different kinds of interventions.[2]

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[1] We can also assume that the majority of women who reported that they used drugs or medications to help them cope with the experience of abuse used licit drugs because the use of illicit drugs in Canada is relatively rare. Adlaf (1993) reported that among Canadian girls and women aged 15 and older, 3% were current marijuana or hashish users and 12% were former users; fewer than 1% were current cocaine or crack users and 2% were former users. The use of heroin, LSD, and amphetamines was even rarer (the estimates were not sizeable enough to be published).

The most significant limitation of the study results from the data related to the societal interventions (physician/nurse support, informal support, clergy support, shelter support, counselling support, and police support). Because of the way in which the questions were worded and the responses coded, we could not elicit comprehensive information about the degree of contact made or the extent of support offered. We decided to create dichotomous variables indicating that contact occurred or did not occur. An alternative approach would have been to conceptualize these societal responses in a way that imparted the relative degree of contact established. For example, physician/nurse support could have been coded: 0 = none, 1 = saw a physician or nurse because of injuries, and 2 = talked to physician about what happened. Similarly, informal support could have been coded: 0 = none, 1 = talked with a family member or a friend or neighbour, and 2 = talked with a family member and a friend or neighbour (both). Shelter support could have been coded: 0 = none, 1 = contacted a shelter or transition house for help, and 2 = stayed at a transition house or shelter. Counselling support could have been coded as the number of contacts with each type of counselling service (crisis centre/crisis line, another counsellor, a women's centre, or a community/family centre). Finally, we could have coded police support as a range of police involvement (e.g., 0 = none, 1 = the police knew of the incident, 2 = the police responded by seeing the abused woman, 3 = the police took the male partner away, 4 = the police laid charges or made an arrest). Clearly, there are problems and advantages associated with either approach and, regardless of the approach taken, we would have been faced with acknowledging the limitations. In the approach taken, the dichotomizing of the concepts limits our interpretation to one of mere contact with various sources of support. The notion that support was actually offered is simply an assumption. However, what we lost in theoretical meaning was perhaps gained in conceptual clarity. Dichotomized concepts are easily interpreted and do not raise concerns about curvilinearity.[3]

In the alternative approach, the polytomous coding of the concepts may result in similar sorts of problems as well as additional problems and gains. First, what is gained by the use of a span or range of possible values? The meaning of the span seems to vary depending on the type of support to be considered. For example, had we used the suggested codings for informal support and counselling support we may have had a greater indication of the number of people providing that support. However, we would be no further ahead in terms of understanding the nature, depth, or significance of that support. In the case of police support, the suggested coding would permit some greater understanding of the nature of the involvement (assuming that the ordering of the various responses and the interval-widths between the values are correct). However, this mixture of meanings attached to the various spans could open the door for greater indistinctness. This problem is similar to that described by Blalock (1982, chap. 4) when he discussed the danger of imposing a dimension on a continuum within a categorical variable because it is likely to be confounded with other closely related dimensions, which may suggest very different theoretical meanings. On the positive side, imposing some theoretical meaning on the span of values implies a theory of how the various sources of societal intervention operate to influence abused women's current health status. Although the theory is implicit in either case, it is clearer in the polytomization of the concepts that it is the degree of support offered, rather than mere contact, that influences or determines the outcome.

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[2] Rose and Saunders (1986) compared the attitudes of physicians and nurses about wife abuse. This small study of 145 nurses and 86 physicians employed at one health centre in the Midwest of the United States of America, revealed that physicians were slightly more inclined than nurses to believe that the abuse of wives was justifiable and that wives were responsible for the prevention of beatings. However, these differences in attitude were related to gender rather than professional affiliation. Indeed, female physicians had the most favourable attitudes regarding wife abuse and male nurses had the most unfavourable.

[3] It is possible that the relationship between a range of support offered by any group and abused women's health status is curvilinear. For example, too much support that impedes an abused woman's independence and makes her overly reliant on others may be as damaging as no support at all.

In the end, we are left with either approach being left open to criticism. We believe that we selected the best approach. Only further research incorporating the suggested and untried coding scheme will uncover the best approach. At the very least, we would discover the degree to which the various coding schemes make a difference in the analysis.

Discussion of Major Findings

The primary purpose of this study was to enlarge our understanding of the effectiveness of selected societal responses in alleviating the adverse health effects of wife abuse. The complexity of the models permitted consideration of several subsidiary questions. Additionally, the Causal Model of Wife Abuse (CMWA) was subjected to testing. The following discussion highlights the findings related to the CMWA, the subsidiary questions, and, finally, the impact of the selected societal responses on abused women's health status. The discussion in the following pages systematically follows through Table 2 of Appendix B, which provides the estimates based on the initial model, the validation model, a combined model (the two half data sets combined), and the two time-specific models. The discussion moves through the table segment by segment.

The Causal Model of Wife Abuse

In our models, the causal indicators of the concepts, severity of physical abuse and dominance or control were modelled as *causal* indicators, rather than *effect* indicators. This distinction is an important one because indicators are commonly believed to arise from underlying concepts, which implicitly points to several assumptions about the relationships among the indicators and between the indicators and other indicators in the model. Specifically, this type of modelling implicitly proposes that there are substantial correlations among the indicators (internal consistency).

By modelling the indicators as causal indicators (the CMWA), we made the theoretical claim that the severity of physical abuse and dominance or control arises from the cumulative effect of exposure to some or all of their indicators weighted for severity according to Straus's (1990b) specification. In so doing, we anticipated that a very different set of relationships are operative in the model. Rather than claiming that there is a strict pattern of covariances among the indicators of abuse, we anticipated that the consequences that emerge as a result of exposure to increasingly severe forms of wife abuse and domination and control emerge in a uniform or consonant fashion.

The idea that the various acts of abuse culminate in unique concepts was essentially subjected to two tests. First, we examined whether one effect emerging from each of the phantom concepts and directed to each of the immediate health responses could imply covariances among the relevant exogenous and endogenous indicators that were consistent with the observed covariances. The second test was conducted when we estimated the model that included the societal responses to wife abuse. Here, for the measurement structure to meet the implied constraints, one effect from each of the phantom concepts to each of the sources of support would have to imply covariances among the indicators that closely matched the observed covariances. In both cases, the model failed. Additional direct effects from specific causal indicators, which bypassed the phantom concepts, were required in order to obtain a reasonably well fit model. We must interpret this finding to mean that other mechanisms, in addition to our notion of the severity of physical abuse and dominance or control are operative. These specific acts (pushing, slapping, hitting with an object, limiting one's contact with family members and friends, etc.) cause abused women's immediate health responses and their need to seek aid because of reasons other than those contained within the notions of severity of physical abuse and dominance or control.

Straus (1990a) wrote that the Conflict Tactics Scales (CTS) is often discounted as a valid measure of wife abuse because it simply sums various acts of aggression (whether severity weighted or not) in isolation from the context or the circumstances in which they occur. Such circumstances may include who initiated the incident, the relative size and strength of the individuals, the nature of their relationship, and whether the acts were defensive or provocative. In response to this criticism, Straus made the following assertions: (a) "it is usually desirable to measure the context variables separately from the violence variable" (p. 56) and (b) "to correct for differences in the height and weight of each spouse, CTS scores could be increased by the percent to which the height and weight of the respondent exceeded that of his or her spouse" (p. 59). For the most part, Straus seems to suggest that the characteristics of the context in which physically aggressive acts occur should be modelled as covariates or interaction terms.

In one sense, we can argue that the added direct effects from some of the causal indicators to several of the intervening variables, which are modeled as consequents of abuse, represent the mechanisms by which the context of the abusive relationship is transmitted. However, most importantly, their presence provides empirical evidence that the thinking underlying the CTS is misguided. Introducing the context in which abuse occurs is not simply an option that a researcher can exercise or overlook. What is at issue here is the construct validity of the CTS. Measurement structures are not fully assessed until they are assessed within a particular context or embedded in a theory (Blalock, 1982; Burt, 1981; Hayduk, 1987, in press). The failure of the CMWA calls into question the measurement structure of the CTS. In order to accurately represent the significance of various acts of abuse when considering outcomes, researchers must provide information about the context; information limited to the frequency and postulated severity of various acts is not sufficient to accurately estimate their effects on outcomes related to physical injury, other health problems, and the degree of contact with various sources of support.

The Health Consequences of Exposure to Abuse

Two questions considered in this study were, "What are the health consequences of exposure to abuse within intimate relationships?" and "Do the immediate or long-term health problems of abused women vary, depending on the nature of the abuse to which they are exposed?" Regardless of when the latest incident of abuse occurred (within the year preceding the survey interview or more than 10 years prior to the interview), and once we controlled for differences in household income, education, and age, exposure to wife abuse explained little of the variance in women's perceived current health status (14.6% to 18.9%). We had anticipated the estimated effects to be stronger than that found based on published findings related to abused women's health problems (e.g., depression, anxiety, physical injury, sleep disturbances, chronic pain disorders, social dysfunction, etc.). As discussed below, immediate health responses do result from abuse, but these health consequences account for very little of the variance in women's perceptions of their current health status. We can not explain why this occurred, although one possibility is that the general public defines health more narrowly than researchers. In keeping with the definition of health adopted by the World Health Organization, the trend in health research suggests that most researchers consider evaluations of general health status to include assessments of individuals' mental, physical, social, and perhaps spiritual well-being.[4] For example, Cunny and Perri (1991) conceptualized a single-item measure of health status as an indicator of "health-related quality of life." They demonstrated that such an indicator was highly correlated with an assessment tool designed to capture individuals' physical functioning, role functioning, general mental health, current health perceptions, pain, and social functioning. Accordingly, we also utilized a single-item indicator and conceptualized health status in the broadest sense. It may be the case, however, that the general public persists in defining its health in relation to the absence of "negative biological circumstances—disease, pain, disability, or death" (Evans & Stoddart, 1994, p. 28), or the absence of illness. This narrower conception of health may account for the weak effects of the abuse variables and their immediate consequents on health status.

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[4] Gill and Feinstein (1994) reviewed 75 published articles containing the term "quality of life" in their titles. In only 15% of the papers was "quality of life" conceptually defined and no author distinguished "overall quality of life" from "health-related quality of life."

Based on the estimates from Model 1 limited to women whose most recent incident of abuse occurred within the year prior to the survey, and controlling for differences in household income, education, and age (which were all found to affect health status: standardized coefficients were .26, .09, and -.13, respectively), we found that the severity of the physical abuse to which women may have been exposed, threats of harm, and exposure to dominance or control or emotional abuse did not explain a statistically significant portion of the variance in women's health status. However, exposure to sexual abuse and the frequency of the physical or sexual abuse to which they were exposed had a negative impact on women's health (standardized coefficients were -.12 and -.15, respectively). Interestingly, when examining the effects of abuse that occurred more than 10 years ago, we find that there is a lingering effect on women's current health status (based on Model 1 limited to women whose most recent incident of abuse was 10+ years ago). The frequency in which the abuse occurred explains some of the variance in women's current health status (standardized effect is -.09). This is interpreted to mean that women who experienced abuse more than 10 years ago have poorer health today than women who never experienced abuse and that the degree of poor health they experience is associated with the number of incidents of abuse to which they were exposed. There are some differences noted in the two time periods. Women who were solely subjected to sexual abuse, 10 or more years ago, do not have a lingering effect on their health. However, if the abuse occurred during a pregnancy, their health is further diminished today (standardized effect is -.09).

At first blush, when one considers the LISREL structural coefficient estimates for the four relevant models (initial Model 3, validation Model 3, and the two time-specific models), one may conclude that several inconsistencies exist. There appear to be some estimates that are statistically significant in some but not all the models, and, perhaps more troubling, some estimates are positive in some models and negative in others. However, as discussed in Chapter 4, it is possible that the standard errors are unreliable because of the non-normal distributions of some of the indicators. Maximum likelihood estimation may result in standard errors that are too small in the presence of skewed and categorical data (Browne & Shapiro, 1988; Chou, Bentler, & Satorra, 1991; Jöreskog & Sörbom, 1989). Accordingly, we limit our discussion to those estimates that exceed an overall magnitude of ±0.10 (standardized); these effects should not only be statistically significant but should have some theoretical or practical significance. Those estimates found to be smaller than ±0.10 (standardized) were considered sufficiently close to zero to be deemed sampling fluctuations around a population parameter equal to zero and not real effects (Hayduk, 1987). In so doing, we find no inconsistencies among the four models with the exception that there are plausible time interactions operative (i.e., the estimates differ in the two time-specific models). In the case where time interactions are suspected, notation is made.

Physical injuries.

The immediate health responses to abuse vary depending on the nature of the abuse. In three of the four relevant models (the initial Model 3, the validation Model 3, and the model for women last abused more than 10 years ago), abuse that occurred during pregnancy was not found to contribute to the severity of the physical injuries sustained (standardized coefficients ranged from .05 to .07). In attempting to explain the larger coefficient found in the model for women who had been abused within the last year, it is possible that this effect has changed over time. (The model for women who had been abused within the previous year resulted in a standardized coefficient of .12 for the effect of abuse during pregnancy on the severity of physical injury.) One could argue that pregnancy now serves as a deterrent and women who are pregnant are less likely to be physically abused. However, if the deterrent fails, that is, if a male partner is not subject to the social constraints in place today, he may also be more likely to severely injure his pregnant wife. On the other hand, this may be a mere sampling fluctuation and our criterion of treating standardized coefficients > .10 as substantive is not sufficiently stringent. In reference to the other possible determinants of the severity of physical injury, the frequency of the abuse consistently was not found to determine the severity of the injury, which may refute the claim that abuse escalates in seriousness over time. As we would expect, it is the severity of the physical abuse that determines, in large part, the severity of the injuries sustained (standardized coefficients ranged from .41 to .87 in the four models). Finally, contrary to the findings of Campbell (1989b), exposure to sexual abuse was not found to compound the severity of injuries sustained.

Psychopathology.

The four models consistently revealed that a major determinant of psychopathology is the frequency in which abuse is perpetrated; psychopathology emerges with increasing severity (greater symptomatology) in women who are abused with greater frequency. Although some researchers have found that sexual abuse compounds the effects of abuse on women's psychology (Campbell, 1989b; Shields & Hanneke, 1983), sexual abuse was not found to compound the psychopathology experienced. However, women who are solely subjected to threats of harm may be at risk for psychopathology. Here again there are inconsistencies in the models that are difficult to interpret. Women who reported being exposed to threats of harm within the previous year were likely to report symptoms of psychopathology (standardized coefficient was .44). However, those women who were threatened with harm more than 10 years ago (and experienced no other and no more recent abuse) did not report experiencing more or elevated symptoms of psychopathology. There may be a recall bias at work here; these women may simply have forgotten how they responded and, in retrospect, knowing that the abuse did not escalate, they minimized their response, whereas women recently exposed to threats of harm may have exhibited and recalled symptoms of psychopathology because they did not know if the abuse would escalate. The reverse pattern was found for the effect of dominance or control on psychopathology. In this instance three of the models revealed that, as abused women are increasingly subjected to domination or controlling behaviours, they are more likely to have symptoms of psychopathology (standardized coefficients ranged from .28 to .58). The exception occurs in the model for women who were abused within the previous year (standardized coefficient was -.01). Does this behaviour no longer result in this response because women today are less likely to be constrained in a relationship with a man who is dominating and controlling (they are better able to terminate the relationship before symptoms appear), or because it takes prolonged exposure before symptoms appear? Or, is this another case of a random fluctuation that is meaningless? Further research, alone, will ascertain the correct explanation.

Alterations to the psyche.

The four models were consistent in their findings concerning some of the potential determinants of abused women sustaining alterations to their psyches, including feelings of shame or guilt, poor self-esteem, and experiencing difficulties in relating to men. Women who were solely exposed to emotional abuse did not report alterations to their psyches. Additionally, abuse during pregnancy and sexual abuse did not compound the potential for developing such problems. However women who were abused with increasing frequency were more likely to undergo alterations to their psyches. The findings related to the role of dominance or control are less clear. Three of the models found strong positive effects (the greater the dominance or control the more severely altered is a woman's psyche) (the standardized coefficients ranged from .26 to .37). The one exception occurred in the model for women who had last experienced abuse more than 10 years ago (standardized coefficient was -.02); these women were not likely to develop alterations to their psyches because of dominating or controlling behaviour. The findings are consistent with the notion that women's immediate health responses to various forms of abuse are dependent upon the time in which the abuse occurred (i.e., there is a time interaction). We find that women who were exposed to dominance or control more than 10 years ago were likely to develop psychopathology and not alterations to their psyches. Whereas, women who were exposed to dominance or control within the previous year were more likely to develop alterations to their psyches, rather than psychopathology. This pattern could be a reflection of changes in the public's conceptualization of mental health problems.

Anger.

Anger was noted to be a unique response among abused women. On the one hand, it was the most common response reported by women who experienced some form of abuse (about one-third reported feeling angry about the situation). Yet, the response was limited to women who experienced abuse that was psychologically threatening, rather than physically threatening, *per se*. With the exception of being pushed, grabbed, or shoved, which led to anger, women who were physically abused did not respond with anger. Nor did anger emerge if the abuse occurred during pregnancy, as the abuse increased in frequency, if threats of harm were made, or if sexual abuse was committed. The only determinants that led to the development of an increase in anger were exposure to dominance or control and emotional abuse. And, even here, there is evidence of an interaction. Only women who were subjected to abuse more than 10 years ago were found to develop anger because of being exposed to dominance or control. Conversely, only women who were recently abused reported that they responded in anger to the emotional abuse to which they were exposed.

Alcohol use.

The published findings related to alcohol use among abused women have been equivocal. Consistent with the findings of Bergman, Larsson, Brismar, and Klang (1987, 1989), Hillard (1985), Ratner (1991, 1993), Shields and Hanneke (1983), and Stark et al. (1979, 1981), many abused women in this study reported relying on alcohol as a coping mechanism. And, the propensity to use alcohol in this way was greater as the frequency and severity of the physical abuse increased. Sexual abuse and emotional abuse, in and of themselves, did not contribute to a woman's tendency to rely on alcohol. Abuse during pregnancy was also found to not be a contributing factor. This is a potentially important finding that may account for the mixed findings in the body of research related to alcohol use among abused women. Most notably, Bullock and McFarlane (1989) reported that abused pregnant women consumed less alcohol than non-abused pregnant women in their sample. The relationship between exposure to abuse and alcohol use may be complex with an interaction present: only women who are not pregnant and abused may have a propensity to use alcohol as a coping mechanism. It is possible that the known adverse effects of alcohol consumption during pregnancy safeguard against its use among pregnant, abused women. There may be additional determinants of alcohol use, depending on the nature of the abuse, although the findings are not consistent across the four models. In particular, exposure to dominance or control was found to be a determinant of alcohol use among women whose last incident of abuse was more than 10 years ago. And, among the women who were exposed to abuse within the year immediately preceding the survey, those who manifested symptoms of psychopathology tended to consume alcohol as a means of coping.

Drug use.

Only two factors were found to be consistent determinants of drug use. Indeed, the nature of the abuse did not seem to be a causal factor. Exposure to physical abuse, threats of harm, sexual abuse, dominance or control, or emotional abuse did not lead abused women to rely on drugs as a coping mechanism. Women who were most frequently abused were the ones most likely to use drugs. The strongest determinant of whether an abused woman took drugs or medications to cope was contact with physicians or nurses (standardized effects ranged from .17 to .36). However, this pattern seems to have changed over time. In the model that was limited to those women who had been abused within the year preceding the survey, contact with physicians or nurses was not found to be a determinant of drug use. In this instance, it was the severity of the physical abuse that accounted for women's drug use; women who were severely physically abused were far more likely to report taking drugs or medications (standardized effect was .16).

The Determinants of Abused Women's Use of Select Support Services

Two questions concerning abused women's use of select support services were addressed: "To what extent do abused women utilize select support services or sources of help in their attempts to alleviate their situations?" and "What are some of the determinants of abused women's utilization of select support services?" The most common source of support reportedly accessed by abused women was that offered by friends, family members, and neighbours; approximately three-quarters of the abused women reported counting on informal sources of support. The second most frequently relied upon source of support was that offered by physicians and nurses (about one-third of the abused women had seen a physician or nurse). It was a relatively small minority of abused women who utilized the remaining sources of support: (a) 25.9% ± 5.3% gained police involvement, (b) 20.5% ± 5.3% sought counselling support, (c) 8.4% ± 3.2% were in contact with shelter staff, and (d) 7.2% ± 3.2% turned to their clergy.

The following discussion highlights the factors that were found to determine whether an abused woman had contact with any particular source of support. Once again, we limit our discussion to those estimates that exceeded an overall magnitude of ±0.10 (standardized) (see Appendix B, Table 2).

Physician/nurse support.

Surprisingly, the immediate health responses to abuse, with the exception of physical injuries, are not factors that determine if women seek the support of health professionals. Abused women with greater symptoms of psychopathology or altered psyches, feelings of anger, or a tendency to rely on alcohol are no more likely to seek the support of physicians or nurses than are abused women free of these health considerations. What does determine whether physicians or nurses come into contact with abused women is the severity of the injuries incurred and the severity of the physical abuse to which the women are subjected. Additionally, abused women who come into contact with the clergy are often referred to health professionals for support. Three factors were found to have inconsistent findings among the four models, which may be indicative of an operative time interaction or trivial departures from a null effect. Specifically, it is possible that exposure to dominance or control once led women to seek the support of physicians or nurses, but this form of abuse no longer results in this intervention (the standardized coefficients for the 10+ years since last incident model and the ≤1 year since last incident model were .17 and -.03, respectively). Conversely, women who were sexually abused more than 10 years ago did not seek the support of health professionals (standardized coefficient was (.02). However, women who were abused within the previous year and who were sexually abused were more likely to contact their health professionals (standardized coefficient was .12). This interaction is very plausible in that only recently have we, as a society, acknowledged that marital rape is unacceptable, criminal, and not to be tolerated; traditional societal values have sanctioned men's unlimited sexual access to their wives (Brownmiller, 1975; Russell, 1990).[5] Finally, the frequency in which the abuse occurs may also be a causal factor; women who are frequently subjected to abuse are most likely to come into contact with health professionals (this was not found to be true for women who reported their last incident of abuse to have occurred more than 10 years ago). Finally, threats of harm and emotional abuse do not lead women to seek the assistance of health professionals. This finding is potentially important because health professionals routinely come into contact with women and are ideally situated to assess women's risk of abuse, homicide, and perpetration of homicide.[6] Further, early identification of women at high risk for abuse or homicide may result in prevention. Physicians and nurses come into contact with women who are physically abused primarily because of the injuries sustained. Women who are subjected to threats of harm may not seek the assistance of physicians and nurses.

Informal support.

Interestingly, women's immediate health responses to abuse are not determinants of their decision to seek the aid of friends, relatives, or neighbours. The development of psychopathology, alterations to the psyche, or anger and the reliance on alcohol or drugs do not significantly influence whether informal sources of support are approached. And, as physical abuse increases in severity, women seem to be deterred from seeking the support of informal sources. Women who are pushed, grabbed, or shoved by their male partners are motivated to seek this source of support (standardized coefficients ranged from .33 to .45), but as the abuse escalates in severity, they are less inclined to do so. Presumably this occurs because the abuse is more serious in nature and formal sources of support (those that can offer protection, legal advice, and so forth), are required. Additionally, women who are subjected to sexual abuse are not likely to seek the aid of their friends and family members. Those factors that cause an abused woman to invoke informal sources of support include increasing occurrences of abuse and exposure to threats of harm, dominance or control, and emotional abuse. However, there are inconsistencies across the four models and we cannot be sure if interactions are present or if random fluctuations account for the differences. Specifically, threats of harm and dominance or control were not found to be determinants of informal support in the model limited to those women who reported being abused within the year preceding the survey. Additionally, emotional abuse was not a determinant of informal support in the model limited to women who were last abused more than 10 years ago. Finally, the severity of the physical injuries incurred was only found to be a significant determinant in the latter model. Although there seems to be a tendency for individuals to be increasingly isolated in our society, and to turn to professional help more readily than once may have been the case, it is unknown if such effects would be noted over a 10-year period. However, services for abused women have proliferated over the past decade, which may suggest that the pattern of help-seeking behaviour has indeed changed over this time period.

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[5] Forced sexual relations within marital or common-law relationships have been illegal in Canada since 1983 (Canada, Department of Justice, Research Section, 1990).

[6] Although abused women rarely kill their spouses (the annual spousal homicide rate for husbands is 4.1 husbands per one million couples [Wilson et al., 1993]), victim precipitated homicides (the victim initiates the homicidal incident by committing an assault or brandishing a weapon) do occur (Browne, 1987; Campbell, 1986).

Clergy support.

Once again, the immediate health consequents of abuse do not determine whether an abused woman will seek a particular source of support. The severity of physical injury sustained, psychopathology, alterations to the psyche, anger, and alcohol and drug use do not influence whether abused women discuss their situations with members of the clergy. The one determinant of such behaviour, of which we can report with confidence, is the frequency of the abuse to which they are exposed. As abuse increases in occurrences, women are led to seek the aid of their clerics and religious leaders. There are some possible determinants that have emerged from the four models, although the results are inconsistent and we cannot be sure that the differences are reflective of changes over time. First, in the model limited to women who were abused within the previous year, increasing severity of physical abuse and sexual abuse led women to their clergy. This was not the case in the model limited to women who had experienced their last incident of abuse more than 10 years ago. We could argue that 10 years ago there existed a poorer understanding of abuse, its causes, and its resolution. Perhaps women who faced increasingly severe forms of abuse and sexual abuse were increasingly ashamed as they were often led to believe that it was their fault. Accordingly, they may have become increasingly isolated and were far less likely to admit their problem to their clergy and church community. Three other possible determinants are noted. Among women who were last faced with abuse more than 10 years ago, exposure to threats of harm, dominance or control, and emotional abuse resulted in clergy support. However, this did not seem to be the case among women who were abused in the recent past.

Shelter support.

Of the possible determinants included in the model, there was only one factor found to be a significant determinant of abused women's use of shelter support services: the severity of the physical abuse. As the physical abuse became increasingly severe, women were far more likely to contact shelter staff (standardized coefficients ranged from .27 to 1.1, with the weakest effect noted in women whose last reported incident was more than 10 years ago and the strongest effect noted in women who had been abused within the past year).[7] Two effects were found to be

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[7] We acknowledge that a standardized effect of 1.1 (in the One-Year Model) is a sign of problems and calls into question the trustworthiness of the model. The problem may have arisen because of collinearity. In particular, the estimate for the effect of physical abuse on physical injury and the effect

(continued...)

sizeable only in the model for women most recently abused. Emotional abuse and alcohol use may also motivate women to seek the services of shelters (standardized coefficients were .18 and .15, respectively). On the other hand, drug use may have been a motivating factor for women who were abused more than 10 years ago (standardized coefficient was .14), but this is not true for the model related to women who were most recently abused. Once again, these interactions seem plausible in that shelter support was not readily available 10 years ago and the factors determining their use may have changed over time. Additionally, the drug use and time interaction is consistent with the claims made earlier that women today are prescribed different kinds of drugs than they were 10 years ago and which have fewer negative consequences.

Counselling support.

Three determinants of counselling support were consistently found across the four models. Women who suffer alterations to their psyches as a result of abuse have a greater likelihood of seeing counsellors than women who do not experience this immediate health consequence. And, abused women are often referred to counsellors by physicians or nurses and by shelter staff. Several time interactions may also be present and may account for some inconsistencies across the models. First, a positive effect from police support to counselling support was estimated only in the model for women who were abused within the previous year (see Chapter 7 for discussion of this effect). Additional possible determinants of abused women's use of counselling support were found in this model. Specifically, among women who were abused within the past year, if they were abused while they were pregnant, they were likely to seek the aid of counsellors. Their likelihood of seeking this aid was also magnified if they were exposed to threats of harm, emotional abuse, or dominance or control, particularly the kind where their contact with relatives and friends was limited. These causal factors were not found to be determinants of counselling support among women who were abused more than 10 years ago. Interestingly, the one determinant of counselling support found for women who were abused more than 10 years ago, and which was not relevant to women abused recently, was the frequency of abuse. As the frequency of abusive incidents escalated, women 10 years ago were more inclined to seek the support of counsellors (standardized coefficient was .33). One can speculate that this finding resulted because women were possibly more constrained to remain within abusive relationships 10 or more years ago, or were more vulnerable to repeated abusive incidents, because there were fewer supports available to them and far less public condemnation of the behaviour. Consequently, these women may have sought the support of counsellors as a means of coping with the situation, rather than finding a means to end the relationship. Further research comparing and contrasting the problems and behaviours of women who were abused more than a decade ago with

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[7] (...continued)
of physical abuse on shelter support are moderately correlated at .42.

those of women who are abused today is necessary to test the validity of these hypotheses.

Police support.

Whether or not the police become involved in an abusive situation is most definitely determined by the severity of the physical abuse perpetrated; the more severe the physical abuse the greater the likelihood that the police will become involved (the standardized coefficients across the four models ranged from .50 to .90). Police involvement is further ensured if the woman is pregnant while being abused (standardized coefficients ranged from .14 to .19). And, police involvement has not been influenced by women's immediate health problems; it is not swayed by the severity of a woman's physical injuries, her psychological problems, or whether she relies on substances to cope. Sadly, the police do not become involved as the result of sexual abuse, although forcing a woman into unwanted sexual activity is a criminal offence in Canada. Two possible interactions are encouraging signs of the police's intention to treat wife abuse as a serious problem and of women's inclination to ensure police involvement. First, there is evidence that the frequency of the abuse was a determinant of police involvement among women who were abused more than 10 years ago (standardized coefficient was .33). However, this was not found to be true among women most recently abused (indeed, the standardized coefficient was negative, -.22, suggesting that the police get involved after relatively few, if not the first, incident, and that their services are less likely to be mustered if the abuse continues). Finally, we found some evidence that police involvement is initiated when a woman is solely threatened with harm (standardized coefficient is .15 in the time-specific model for women abused recently), and this was not the case in the model for women abused more than 10 year (standardized coefficient was .00).

The Effectiveness of Societal Responses

We now turn our attention to the two paramount questions posed in this work: To what degree are select societal responses to wife abuse effective in enhancing abused women's health? and Has there been an historical improvement in the effectiveness of select societal responses to wife abuse? These questions are more difficult to answer than originally anticipated, most obviously because the terminal concept, women's current health status was not found to be greatly influenced by abused women's immediate health problems or the societal responses enacted. However, certain potential trends are apparent and are worthy of comment.

Physician/nurse support.

The effects from physician/nurse support to current health status were found to be negative, albeit small, in all four models. This suggests, for example, that women who sustain physical injuries and who do not seek the assistance of physicians or nurses may acquire better health, in the long run, than women who do seek such assistance.[8] How can this be? It is possible that when women are abused and sustain injuries, particularly those that are relatively minor in nature, they seek the assistance of physicians or nurses for reasons other than, or in addition to, the treatment of those injuries, such as sleeplessness or headache. That is, they may be in search of emotional or psychological support and advice, including some assurance that they are not responsible for the abuse to which they have been subjected. Harris and Dewdney (1994) found that among a sample of women residing in six communities in southwestern Ontario, 45% believed that physicians were a good source of referrals for abused women, 36% believed that physicians could provide counselling, 22% indicated that physicians would provide emotional support, and 11% believed that they would obtain advice from physicians, and consequently listed physicians and hospitals as appropriate places for abused women to turn.

Women's expectations of health professionals may deviate from the interventions typically offered by health professionals to abused women (Harris & Dewdney, 1994). Health professionals have not been educated to consider the aetiology of injuries, particularly the social aetiology, when they treat clients (Brown et al., 1993; Campbell et al., 1994; Ferris, 1994; Ferris & Tudiver, 1992; Hanvey & Kinnon, 1993; Kurz, 1987, 1990; Warshaw, 1993). If information that an injury was caused by a partner is not offered by an abused woman, it is unlikely that the health professional will uncover the cause (Brismar, Bergman, Larsson, & Strandberg, 1987; McLeer et al., 1989; McLeer & Anwar, 1989; Tilden & Shepherd, 1987; Warshaw, 1993). Accordingly, the attention of physicians is focussed solely on the immediate issue at hand, the injury.[9] This apparent neglect for all that an abused woman is going through may have devastating consequences for her overall sense of self-worth, her perception that what she has undergone is intolerable and indefensible, and that she rightly deserves to be supported. Indeed, Warshaw (1993) contended that heath professionals' failure to confirm or acknowledge the abuse that women experience, in itself, results in psychopathology. And, Randall (1990) aptly observed that, whereas emergency room physicians (and nurses) would not consider discharging a patient with a life-threatening condition, they all too frequently discharge abused women following treatment of their injuries without any arrangements made to ensure their safety and without knowing whether they will return to the same abusive relationships that caused those injuries.

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[8] Recall that, for the most part, the physical injuries sustained by abused women were relatively minor (bruises, cuts, scratches, or burns) such that they would not necessitate health professional involvement.

[9] Warshaw (1993) reviewed the emergency room charts of all women admitted to a large, American public hospital during a two-week period. She concluded that nurses and physicians tended to "disembody" abusive events so that the underlying aetiology of an injury is restricted to a mechanical event alone. For example, she observed notations such as, "Was beaten to face and head with fist," "Blow to head by stick with nail in it," "Hit on left wrist by a jackhammer," "Was hit on upper lip, teeth loose and [with] dislocation. Happened last night" (p. 140). Warshaw aptly noted that no reference was made to the subject (who was hit), who hit her, what her relationship to that person was, or the circumstances leading up to the event.

The models provide some evidence that the negative effect of physician/ nurse support is stronger in the recent past. If this is the case, it is consistent with the thesis put forward here. As society, in general, communicates its condemnation of abuse (as seems to be occurring), women may have greater expectations that health professionals recognize abuse when it occurs and that they intervene. Apparent disregard of the problem may only serve to further diminish a woman's overall health.

Informal support.

Informal support was found to be the most common source of support contacted by abused women. We found that women who obtain such support experience no effect on their long-term health status. Contact with such support is made only in response to threats of harm, the exercise of dominance or control by a male partner, or emotional abuse—forms of abuse that do not lead to the immediate health problems examined in this study. When women are physically abused or sexually abused, they tend to seek support from sources other than their friends, relatives, or neighbours. The study of informal sources of support for women who have been abused is limited. However, other researchers also have concluded that informal sources of support, for the most part, appear to be ineffectual (cf. Dobash & Dobash, 1979; Kennedy & Dutton, 1987, 1989; Kennedy et al., 1989; Paquin, 1994; Ursel, 1984). Why don't women turn to friends, relatives, or neighbours when they are physically or sexually abused? And, when informal sources of support are contacted, why are they not more successful in moderating the health consequences of abuse? Dobash and Dobash (1979) hypothesized that abused women initially do not confide in others because they do not consider the abuse to be a real or continuing problem. This is consistent with our finding that the frequency of abuse is a determinant of contact with informal sources of support. Women may be initially restrained from seeking help because of the stigma attached to violence within families, by fear, and by their notions of "privacy, respectability, shame, and guilt" (Dobash & Dobash, 1979, p. 165). Miller (cited in Dobash & Dobash, 1979) noted that abused women were reluctant to seek the support of relatives and friends because they were uncertain about their ability or willingness to provide emotional support, shelter, or financial assistance. Further, the abused women Miller studied wondered if their family members and friends would question their very adequacy, interfere in unhelpful ways, or simply gossip. When informal sources of support were enacted, Dobash and Dobash found that they were not particularly helpful because they often resulted in the offering of a "sympathetic ear," but rarely in active involvement. This is the case, they contended, because even concerned relatives and friends are bound by the ideals of privacy, the autonomy of the family, and the sanctity of marriage. Even though they may reject what is occurring to the woman, and are faced with a contradiction, they often fail to intervene or offer advice or assistance.

Clergy support.

If a woman is abused and seeks the support of the clergy, she will develop poorer health than if she does not seek such support. And this negative effect, albeit small, appears to be stronger in the more recent past than that observed 10 or more years ago. We suspect that the failings of the clergy have become more pronounced in recent years as a result of the same factors that have magnified the adverse effects of health professionals. Although some sectors may believe the contrary, the public, for the most part, has accepted the message that violence within families is not to be tolerated. As a consequence, when abused women seek the support of the clergy, and others, they may have preconceived notions about the advice they ought to receive. They may expect their religious leaders to condemn the behaviour, and to intervene in ways that will prevent its recurrence. Harris and Dewdney (1994) found that among the women they surveyed, about one half believed that the clergy should provide abused women with emotional support and counselling and about one in five believed that the clergy should make referrals and find temporary shelter for abused women. Researchers have observed, however, that the clergy rarely take action in response to abused women and, for the most part, are ambivalent about the problem because its acknowledgement may conflict with their notions about women's role in society, the family and the sanctity of marriage (cf. Alsdurf & Alsdurf, 1988; Brendtro & Bowker, 1989; Martin, 1989).

Shelter support.

Of the six studied sources of support, shelters provided the strongest positive effect on abused women's current health status. And, the effectiveness of shelters has appeared to improve over the past decade. The improvement of the effectiveness of shelters over time is consistent with MacLeod's (1987) observation that the earliest shelters in Canada were designed solely to provide affordable, emergency shelter. In recent years, the services offered by shelters have expanded to include crisis intervention, the provision of information related to criminal justice and divorce proceedings, advocacy services, nursing care, assistance with child care and parenting, counselling, anger management, self-growth programs, and referral to other community-based agencies (Innes et al., 1991).[10] Indeed, MacLeod (1987) found that nearly half of the shelters she surveyed indicated that one of their major goals was the "empowerment of women." This study supports the claim that shelters provide effective services for abused women, which may occur for reasons suggested by Henderson (1989): in addition to the advice, general support, and information offered, shelters provide abused women with the knowledge that they are not alone, that they are not oddities, that they are not to blame, that they have the right to leave an abusive relationship, that there is help available, and that they can manage on their own.

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[10] Although we note elsewhere that interventions provided by counsellors and health professionals have adverse, or minimal, effects on abused women's health status, we suspect that the nurses and counsellors who provide services to abused women residing in shelters have special training and sensitivity to the issues of abused women and consequently have a positive effect on their long-term health.

Counselling support.

We found that abused women who sought the services of various counselling agencies experienced little change in their long-term health status. For the most part, little difference in health status was made if a woman saw a counsellor. If a true historical trend exists, it would appear that women who saw counsellors because of abuse more than 10 years ago may have acquired poorer health as a result. However, among the women who sought the aid of a counselling agency within the year prior to the survey, there was no effect noted on their current health status. Once again, our findings provide empirical support for the prevailing conclusions evident in the literature that are often based on anecdotal or incidental observations. Specifically, many authors who have addressed the role of counselling *vis-à-vis* wife abuse have concluded that the orientation of such services has perpetuated rather than alleviated the problems of abused women (cf. Bograd, 1982, 1984; Dobash et al., 1985; Freedman, 1985; Hansen et al., 1991; MacLeod, 1980; Pagelow, 1981; Wiebe, 1985). These authors claim that many erroneous beliefs may underlie the counselling provided and consequently divert the attention of counsellors away from the real problem, the abuse. Such erroneous beliefs include the ideas that the problem of abuse is caused by poor communication, which can be enhanced, that individual change or adjustment on the part of the wife will result in a healthier relationship, that women's depression, paranoia, or personality inadequacies cause the abuse and consequently require treatment, or that the final aim of counselling is to preserve the marriage and maintain the intactness of the family unit. Although some may argue that these beliefs, although historically believed to be true, no longer influence the care provided by counsellors, MacKay (1992) found that, in 1989, most Canadian graduates from "human service professional schools" were not provided with the skills necessary to assist abused women.

Police support.

Our models indicate that police involvement has a small but positive effect on abused women's long-term health status. Studies in Canada generally have revealed that abused women are satisfied with the police intervention they receive (cf. Jaffe et al., 1991; Jaffe et al., 1993; Johnson, 1988; Rodgers, 1994). Many American researchers question whether mandatory arrest policies protect women from further incidents of abuse (cf. Gelles, 1993; Manning, 1993; Schmidt & Sherman, 1993), and have found that abused women generally rate police involvement negatively (cf. Bowker & Maurer, 1987; Brendtro & Bowker, 1989; Ferraro & Pope, 1993; Frieze, 1983; Sullivan et al., 1992). However, Rodgers (1994) found, in analyzing the Violence Against Women Survey (VAWS) data, that the violence perpetrated against Canadian wives decreased or stopped following police intervention in 45% of the cases. It appears that police involvement, within the Canadian context, is good for abused women's general well-being and should be promoted. This is one instance where the findings of American studies may not be generalizable to the Canadian context and should not influence public policy decisions.

Conclusion

Abused women suffer from a number of health consequences as the result of abuse. The nature of those health consequences is determined, in part, by the nature of the abuse. And, as a result of the abuse experienced, women seek the services or support of health professionals, friends, relatives, neighbours, the clergy, shelters, counsellors, and the police. For the most part, abused women's help-seeking behaviours are not influenced by the immediate health responses suffered but are influenced by the nature of the abuse. Unfortunately, few of the resources available to abused women moderate the adverse health consequences of abuse. Police involvement and shelter stays are positive interventions and seem to enhance the health of abused women; they do far more than express the community's condemnation of abuse. However, the role played by physicians, nurses, the clergy, and counsellors seems to be less promising. When abused women come into contact with these professional groups, as a result of the abuse they have experienced, they are likely to receive no gain or suffer further losses to their health status. Despite the active lobbying of women's organizations and advocates for victims, the development of a myriad of educational and public awareness programs, the introduction of institutional policies, and a plethora of written materials, these professional groups seem to have failed to provide interventions that are effective in protecting or enhancing the health of abused women.

Why is the current approach failing? In many respects, we can consider the current approach to be a stopgap solution that provides too little, too late. Although tremendous energy has been expended in attempting to enhance the services of professionals in all sectors of our society, much of the attention has been focussed on the immediate needs of abused women. Far less attention has been paid to understanding why people are violent and abusive, why we as a society accept, tolerate, or ignore such behaviour, how we can successfully intervene with people who are abusive, and how we can reduce, if not eliminate, its incidence (Tifft, 1993). The interventions of health professionals, counsellors, the clergy, and others are most commonly focused on abused women, and infrequently on abusive men, who are treated on a single, case-by-case basis. The women, the relationship, or the abusive men, become the problem. These individual, and occasionally family-centred, interventions do little to promote change to the social structures and institutional norms and values that permit abuse to occur. What is sorely needed are interventions designed to alter those social structures. Such interventions must be community-coordinated, with each sector of the community contributing to the change, and must be health promotion and prevention oriented (Innes et al., 1991). The recommendations made by Innes et al. (1991) are as relevant, as futuristic, and as yet unbegotten as they were when they were written:

- "mechanisms [must] be developed in every province and territory to bring together the full range of government and community leadership to plan a comprehensive, coordinated, systematic approach to eliminating...[wife abuse]."

- "a community development health promotion approach [must] be encouraged and supported to facilitate community action, identify inter-sectoral and role responsibility and allocate community resources to address...[wife abuse]."
- "policy makers, program developers and service providers [must] have access to a sound data base of accurate information on the extent and nature of...[wife abuse], on intervention approaches employed and evaluated, and on current research-based health promotion and prevention strategies."
- "Employers and administrators [must] be considered important partners in creating opportunities for employees to become aware of... [wife abuse] and to develop strategies to prevent manifestations of woman abuse in the work place."
- "Community education [must] include the nature and cause of...[wife abuse] and information about resources for assistance and facilitate the formation of informal neighbourhood and mutual aid networks."
- "Boards of directors of major institutions and community leaders [must] be encouraged to take an active role in the planning and implementing of community programs related to preventing and eliminating...[wife abuse]."
- "Educational preparation of health, social, legal, and general education professionals [must] include basic information regarding the incidence and nature of...[wife abuse] and [must] identify how to detect and how best to assist individuals who are abused. Preparation should also enhance gender equality, mutual respect and the valuing of non-violent and non-discriminatory methods of resolving conflict."
- "Primary and secondary education of children in school and in youth organizations [must] address specific topics such as gender role attitudes and the valuing of individual rights and privileges as well as specific teaching to personal protection, an understanding of abuse, and non-violent resolution of conflict." (pp. 36-37)

The undertaking may seem limitless, pessimism may abound, but the goal of eliminating wife abuse is attainable. In our communities we have successfully eliminated violence as a means of resolving conflict between labour and management. Surely, we can eliminate violence as a means of resolving conflict between marital partners.

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Appendix A

Correlation/Covariance Matrices

The Correlation/Covariance Matrix for Model 1 (n = 5,370 - 5,539)[1,2,3]

	y_1	y_2	y_3	y_4	y_5	y_6	y_7	y_8	y_9	y_{10}
y_1	1.00 5.60									
y_2	.39 2.64	1.00 8.12								
y_3	-.22 -.85	-.23 -1.08	1.00 2.69							
y_4	-.12 -.07	-.04 -.03	-.03 -.01	1.00 .06						
y_5	-.16 -.84	-.06 -.38	-.10 -.37	.54 .29	1.00 5.03					
y_6	-.13 -.10	-.04 -.04	-.12 -.06	.39 .03	.67 .48	1.00 .10				
y_7	-.11 -.11	-.02 -.03	-.14 -.10	.40 .04	.76 .74	.53 .07	1.00 .19			
y_8	-.14 -.11	-.06 -.06	-.08 -.05	.45 .04	.73 .59	.57 .07	.66 .10	1.00 .13		
y_9	-.14 -.10	-.05 -.05	-.10 -.05	.48 .04	.69 .48	.58 .06	.57 .07	.71 .08	1.00 .10	
y_{10}	-.10 -.05	-.03 -.02	-.09 -.03	.35 .02	.54 .28	.59 .04	.39 .04	.49 .04	.50 .04	1.00 .05

	y_{1}	y_{2}	y_{3}	y_{4}	y_{5}	y_{6}	y_{7}	y_{8}	y_{9}	y_{10}
y_{11}	-.14 -.09	-.05 -.04	-.08 -.04	.50 .03	.68 .43	.57 .05	.52 .06	.67 .07	.76 .07	.55 .04
y_{12}	-.11 -.06	-.04 -.03	-.06 -.03	.31 .02	.54 .30	.46 .04	.42 .04	.52 .04	.53 .04	.42 .02
y_{13}	-.12 -.06	-.05 -.03	-.06 -.02	.32 .02	.47 .22	.39 .03	.35 .03	.43 .03	.45 .03	.44 .02
y_{14}	-.15 -.14	-.05 -.06	-.11 -.07	.45 .04	.78 .69	.57 .07	.69 .12	.69 .10	.65 .08	.46 .04
y_{15}	-.08 -.05	-.02 -.01	-.08 -.04	.36 .02	.54 .32	.44 .04	.39 .04	.45 .04	.44 .04	.36 .02
y_{16}	-.21 -.19	-.10 -.11	-.08 -.05	.30 .03	.53 .47	.41 .05	.45 .08	.47 .07	.44 .05	.34 .03
y_{17}	-.15 -.12	-.06 -.06	-.09 -.06	.33 .03	.54 .43	.39 .04	.43 .07	.45 .06	.44 .05	.35 .03
y_{18}	-.17 -.16	-.07 -.08	-.14 -.09	.27 .03	.48 .44	.37 .05	.41 .07	.42 .06	.38 .05	.31 .03
y_{19}	-.16 -.11	-.08 -.07	.00 .00	.25 .02	.43 .28	.33 .03	.34 .04	.36 .04	.36 .03	.29 .02
y_{20}	-.18 -.17	-.08 -.09	-.07 -.04	.36 .04	.64 .58	.49 .06	.53 .09	.55 .08	.53 .07	.39 .04
y_{21}	.28 .69	.24 .72	-.22 -.37	-.09 -.02	-.09 -.21	-.06 -.02	-.08 -.04	-.07 -.02	-.08 -.03	-.08 -.02

	y_{11}	y_{12}	y_{13}	y_{14}	y_{15}	y_{16}	y_{17}	y_{18}	y_{19}	y_{20}
y_{11}	1.00 .08									
y_{12}	.59 .04	1.00 .06								
y_{13}	.48 .03	.43 .02	1.00 .04							
y_{14}	.61 .07	.48 .05	.42 .03	1.00 .15						

	y_{11}	y_{12}	y_{13}	y_{14}	y_{15}	y_{16}	y_{17}	y_{18}	y_{19}	y_{20}
y_{15}	.47 .04	.42 .03	.39 .02	.45 .05	1.00 .07					
y_{16}	.44 .05	.36 .03	.34 .03	.47 .07	.36 .04	1.00 .15				
y_{17}	.43 .04	.39 .03	.33 .02	.48 .07	.40 .04	.56 .08	1.00 .13			
y_{18}	.39 .04	.31 .03	.29 .02	.43 .07	.34 .04	.63 .10	.55 .08	1.00 .17		
y_{19}	.35 .03	.31 .02	.28 .02	.38 .04	.32 .03	.38 .04	.41 .04	.36 .04	1.00 .09	
y_{20}	.50 .06	.40 .04	.33 .03	.58 .09	.41 .04	.51 .08	.52 .08	.45 .07	.45 .05	1.00 .16
y_{21}	-.08 -.02	-.05 -.01	-.08 -.02	-.10 -.04	-.05 -.01	-.06 -.03	-.07 -.03	-.08 -.03	-.08 -.02	-.10 -.04

	y_{21}
y_{21}	1.00 1.08

[1] Includes a random sample of one half of the women who had ever been married or lived in a common-law relationship.

[2] Pairwise deletion of missing cases.

[3] Person weighting factor used.

y_1 = Household income.
y_2 = Education.
y_3 = Age (in decades).
y_4 = Occurrence During Pregnancy.
y_5 = Frequency of Abuse.
y_6 = Something Thrown.
y_7 = Pushed, Grabbed or Shoved.
y_8 = Slapped.
y_9 = Kicked, Bit, or Hit with a Fist.
y_{10} = Hit with an Object.
y_{11} = Beaten Up.

y_{12} = Choked.
y_{13} = Knife or Gun Involvement.
y_{14} =Threats of Harm.
y_{15} = Forced Sex.
y_{16} = Husband was/is Jealous.
y_{17} = Contact Limited.
y_{18} = Monitored.
y_{19} = Limited to Finances.
y_{20} = Called Names.
y_{21} = Current Health Status.

The Correlation/Covariance Matrix for Base Model 2 (*n* = 934 - 5,539)[1,2,3,4]

	y_1	y_2	y_3	y_4	y_5	y_6	y_7	y_8	y_9	y_{10}
y_{22}	-.16 -.61	-.10 -.48	.00 -.00	.32 .13	.46 1.71	.40 .21	.19 .14	.44 .27	.55 .28	.42 .16
y_{23}	-.09 -.17	-.01 -.02	-.07 -.09	.17 .03	.29 .51	.20 .05	.07 .03	.16 .05	.24 .06	.16 .03
y_{24}	-.05 -.09	-.05 -.11	-.01 -.01	.19 .03	.31 .50	.18 .04	.05 .02	.21 .05	.17 .04	.18 .03
y_{25}	.03 .03	.02 .03	-.05 -.04	.02 .00	.05 .05	-.01 -.00	-.04 -.01	-.02 -.00	.10 .00	.03 .00
y_{26}	-.06 -.04	-.07 -.06	-.02 -.01	.06 .00	.17 .13	.09 .01	-.04 -.01	.10 .01	.15 .02	.09 .01
y_{27}	-.16 -.13	-.12 -.12	.05 .03	.12 .01	.26 .20	.13 .01	.08 .01	.19 .02	.19 .02	.21 .02

	y_{11}	y_{12}	y_{13}	y_{14}	y_{15}	y_{16}	y_{17}	y_{18}	y_{19}	y_{20}
y_{22}	.61 .29	.38 .16	.30 .10	.32 .21	.23 .10	.27 .17	.21 .13	.24 .16	.18 .09	.30 .20
y_{23}	.22 .05	.20 .04	.18 .03	.22 .07	.19 .04	.17 .05	.08 .02	.12 .04	.16 .04	.21 .07
y_{24}	.24 .05	.18 .03	.12 .02	.16 .05	.15 .03	.10 .03	.19 .05	.13 .04	.05 .01	.18 .05
y_{25}	.04 .01	-.01 -.00	-.06 -.01	-.01 -.00	.03 .00	-.04 -.01	.04 .01	-.00 -.00	.00 .00	.02 .00
y_{26}	.16 .02	.15 .01	.02 .00	.10 .01	.14 .01	.13 .02	.10 .01	.12 .02	.16 .02	.12 .02
y_{27}	.20 .02	.19 .02	.14 .01	.19 .03	.17 .02	.17 .02	.13 .02	.17 .02	.24 .02	.20 .03

	y_{21}	y_{22}	y_{23}	y_{24}	y_{25}	y_{26}	y_{27}
y_{22}	-.09	1.00					
	-.15	2.78					
y_{23}	-.05	.19	1.00				
	-.04	.25	.65				
y_{24}	-.03	.18	.17	1.00			
	-.02	.22	.10	.52			
y_{25}	.07	.02	-.02	.06	1.00		
	.03	.02	-.01	.02	.21		
y_{26}	-.03	.15	.19	.15	-.01	1.00	
	-.01	.09	.05	.04	-.00	.12	
y_{27}	-.16	.29	.18	.14	-.10	.19	1.00
	-.06	.17	.05	.03	-.02	.02	.12

[1] Contains only that part of the matrix that is unique to base Model 2. The remaining correlations/covariances can be found in the matrix related to Model 1.

[2] Women free of abuse were coded as missing for immediate health responses.

[3] Pairwise deletion of missing cases.

[4] Person weighting factor used.

y_1 = Household income.
y_2 = Education.
y_3 = Age (in decades).
y_4 = Occurrence During Pregnancy.
y_5 = Frequency of Abuse.
y_6 = Something Thrown.
y_7 = Pushed, Grabbed, or Shoved.
y_8 = Slapped.
y_9 = Kicked, Bit, or Hit with a Fist.
y_{10} = Hit with an Object.
y_{11} = Beaten Up.
y_{12} = Choked.
y_{13} = Knife or Gun Involvement.
y_{14} =Threats of Harm.
y_{15} = Forced Sex.
y_{16} = Husband was/is Jealous.
y_{17} = Contact Limited.
y_{18} = Monitored.
y_{19} = Limited to Finances.
y_{20} = Called Names.
y_{21} = Current Health Status.
y_{22} = Physical Injury.
y_{23} = Psychopathology.
y_{24} = Altered Psyche.
y_{25} = Anger.
y_{26} = Alcohol Use.
y_{27} = Drug Use.

The Correlation/Covariance Matrix for Final Model 2 (*n* = 4,114 - 5,539)^{1,2,3,4}

	y_1	y_2	y_3	y_4	y_5	y_6	y_7	y_8	y_9	y_{10}
y_{22}	-.13	-.06	-.06	.46	.62	.56	.50	.60	.67	.52
	-.28	-.16	-.09	.10	1.24	.16	.19	.19	.18	.11
y_{23}	-.12	-.03	-.10	.38	.62	.46	.57	.49	.49	.35
	-.13	-.04	-.08	.04	.65	.07	.12	.08	.07	.04
y_{24}	-.07	-.04	-.05	.31	.46	.33	.34	.38	.33	.29
	-.06	-.04	-.03	.03	.37	.04	.05	.05	.04	.02
y_{25}	-.06	-.02	-.09	.23	.43	.27	.45	.33	.29	.22
	-.03	-.01	-.04	.01	.24	.02	.05	.03	.02	.01
y_{26}	-.07	-.05	-.05	.19	.36	.25	.28	.28	.30	.21
	-.03	-.02	-.01	.01	.14	.01	.02	.02	.02	.01
y_{27}	-.12	-.07	-.03	.24	.41	.29	.34	.36	.33	.31
	-.05	-.03	-.01	.01	.16	.02	.03	.02	.02	.01

	y_{11}	y_{12}	y_{13}	y_{14}	y_{15}	y_{16}	y_{17}	y_{18}	y_{19}	y_{20}
y_{22}	.70	.50	.41	.54	.39	.47	.42	.46	.35	.52
	.18	.11	.08	.19	.09	.16	.13	.17	.09	.19
y_{23}	.45	.39	.34	.57	.40	.47	.40	.45	.39	.53
	.06	.04	.03	.10	.05	.09	.07	.09	.05	.10
y_{24}	.37	.29	.23	.36	.28	.29	.35	.31	.21	.36
	.04	.03	.02	.05	.03	.04	.04	.05	.02	.05
y_{25}	.28	.20	.13	.38	.25	.28	.32	.32	.24	.36
	.02	.01	.01	.04	.02	.03	.03	.03	.02	.04
y_{26}	.29	.26	.13	.31	.26	.30	.27	.29	.28	.31
	.01	.01	.00	.02	.01	.02	.02	.02	.01	.02
y_{27}	.33	.30	.24	.37	.29	.33	.29	.34	.35	.37
	.02	.01	.01	.03	.01	.02	.02	.02	.02	.03

	y_{21}	y_{22}	y_{23}	y_{24}	y_{25}	y_{26}	y_{27}
y_{22}	-.09	1.00					
	-.08	.79					
y_{23}	-.09	.41	1.00				
	-.04	.17	.22				
y_{24}	-.06	.31	.34	1.00			
	-.02	.10	.06	.13			
y_{25}	-.03	.26	.29	.23	1.00		
	-.01	.06	.03	.02	.06		
y_{26}	-.05	.28	.34	.25	.16	1.00	
	-.01	.04	.03	.02	.01	.03	
y_{27}	-.12	.40	.34	.24	.09	.29	1.00
	-.02	.06	.03	.01	.00	.01	.03

[1] Contains only that part of the matrix that is unique to Final Model 2. The remaining correlations/covariances can be found in the matrix related to Model 1.

[2] Women free of abuse were coded as zero for immediate health responses.

[3] Pairwise deletion of missing cases.

[4] Person weighting factor used.

y_1 = Household income.
y_2 = Education.
y_3 = Age (in decades).
y_4 = Occurrence During Pregnancy.
y_5 = Frequency of Abuse.
y_6 = Something Thrown.
y_7 = Pushed, Grabbed, or Shoved.
y_8 = Slapped.
y_9 = Kicked, Bit, or Hit with a Fist.
y_{10} = Hit with an Object.
y_{11} = Beaten Up.
y_{12} = Choked.
y_{13} = Knife or Gun Involvement.
y_{14} =Threats of Harm.
y_{15} = Forced Sex.
y_{16} = Husband was/is Jealous.
y_{17} = Contact Limited.
y_{18} = Monitored.
y_{19} = Limited to Finances.
y_{20} = Called Names.
y_{21} = Current Health Status.
y_{22} = Physical Injury.
y_{23} = Psychopathology.
y_{24} = Altered Psyche.
y_{25} = Anger.
y_{26} = Alcohol Use.
y_{27} = Drug Use.

The Correlation/Covariance Matrix for Model 3 (*n* = 4,114 - 5,539)[1,2,3,4]

	y_1	y_2	y_3	y_4	y_5	y_6	y_7	y_8	y_9	y_{10}
y_{28}	-.12	-.06	-.05	.39	.61	.46	.49	.53	.53	.44
	-.07	-.04	-.02	.02	.33	.03	.05	.05	.04	.02
y_{29}	-.13	-.06	-.15	.42	.75	.58	.76	.63	.60	.41
	-.11	-.06	-.09	.04	.61	.07	.12	.08	.07	.03
y_{30}	-.06	-.04	.02	.23	.30	.18	.24	.22	.18	.15
	-.02	-.01	.00	.01	.08	.01	.01	.01	.01	.00
y_{31}	-.12	-.04	-.09	.27	.34	.30	.26	.33	.34	.31
	-.04	-.02	-.02	.01	.10	.01	.01	.02	.01	.01
y_{32}	-.07	-.02	-.07	.27	.44	.32	.37	.35	.33	.21
	-.04	-.01	-.02	.01	.20	.02	.03	.03	.02	.01
y_{33}	-.16	-.06	-.05	.45	.56	.48	.45	.49	.52	.44
	-.09	-.04	-.02	.02	.28	.03	.04	.04	.04	.02

	y_{11}	y_{12}	y_{13}	y_{14}	y_{15}	y_{16}	y_{17}	y_{18}	y_{19}	y_{20}
y_{28}	.57	.47	.34	.53	.44	.44	.47	.43	.43	.55
	.04	.03	.02	.05	.03	.04	.04	.04	.03	.05
y_{29}	.53	.45	.35	.74	.42	.59	.56	.60	.47	.68
	.05	.04	.03	.10	.04	.08	.07	.09	.05	.10
y_{30}	.20	.09	.13	.24	.20	.24	.21	.19	.24	.26
	.01	.00	.00	.01	.01	.01	.01	.01	.01	.01
y_{31}	.39	.29	.34	.31	.29	.30	.32	.27	.25	.32
	.01	.01	.01	.02	.01	.01	.01	.01	.01	.02
y_{32}	.32	.28	.15	.41	.27	.32	.41	.33	.33	.39
	.02	.01	.01	.03	.01	.02	.03	.03	.02	.03
y_{33}	.51	.46	.44	.52	.41	.49	.43	.43	.37	.49
	.03	.02	.02	.05	.02	.04	.03	.04	.02	.04

	y_{21}	y_{22}	y_{23}	y_{24}	y_{25}	y_{26}	y_{27}	y_{28}	y_{29}	y_{30}
y_{28}	-.12	.58	.42	.28	.24	.20	.46	1.00		
	-.03	.12	.05	.02	.01	.01	.02	.06		
y_{29}	-.08	.49	.57	.35	.42	.32	.32	.49	1.00	
	-.03	.16	.10	.05	.04	.02	.02	.04	.13	
y_{30}	-.10	.16	.19	.14	.11	.06	.27	.34	.22	1.00
	-.01	.02	.01	.01	.00	.00	.01	.01	.01	.01
y_{31}	-.06	.30	.29	.26	.11	.17	.26	.32	.26	.07
	-.01	.04	.02	.01	.00	.00	.01	.01	.01	.00
y_{32}	-.06	.29	.39	.29	.22	.20	.29	.43	.39	.24
	-.01	.05	.04	.02	.01	.01	.01	.02	.03	.01
y_{33}	-.07	.49	.39	.27	.16	.16	.28	.54	.48	.24
	-.02	.10	.04	.02	.01	.01	.01	.03	.04	.01

	y_{31}	y_{32}	y_{33}
y_{31}	1.00		
	.02		
y_{32}	.30	1.00	
	.01	.04	
y_{33}	.39	.33	1.00
	.01	.01	.05

[1] Contains only that part of the matrix that is unique to Model 3. The remaining correlations/covariances can be found in the matrices related to Models 1 and 2.

[2] Women free of abuse were coded as zero for societal responses.

[3] Pairwise deletion of missing cases.

[4] Person weighting factor used.

y_1 = Household income.
y_2 = Education.
y_3 = Age (in decades).
y_4 = Occurrence During Pregnancy.
y_5 = Frequency of Abuse.
y_6 = Something Thrown.
y_7 = Pushed, Grabbed, or Shoved.
y_8 = Slapped.
y_9 = Kicked, Bit, or Hit with a Fist.
y_{10} = Hit with an Object.
y_{11} = Beaten Up.
y_{12} = Choked.
y_{13} = Knife or Gun Involvement.
y_{14} =Threats of Harm.
y_{15} = Forced Sex.
y_{16} = Husband was/is Jealous.
y_{17} = Contact Limited.
y_{18} = Monitored.
y_{19} = Limited to Finances.
y_{20} = Called Names.
y_{21} = Current Health Status.
y_{22} = Physical Injury.
y_{23} = Psychopathology.
y_{24} = Altered Psyche.
y_{25} = Anger.
y_{26} = Alcohol Use.
y_{27} = Drug Use.
y_{28} = Physician/nurse Support.
y_{29} = Informal Support.
y_{30} = Clergy Support.
y_{31} = Shelter Support.
y_{32} = Counselling Support.
y_{33} = Police Support.

Appendix B

Several Estimates of Model 3

Several minor inconsistencies were noted between the initial and validation models. Consequently, we estimated Model 3 with both data sets (the randomly split half data sets) combined in order to obtain the best estimates.[1] Table 1 provides details regarding the overall fit of each model.[2]

Table 1 Fit Indices for the Initial, Validation, and Combined Model 3

Initial Model	Validation Model	Combined Model
N = 4,114	N = 3,995	N = 8,109
df = 174	df = 174	df = 174
χ^2 = 1,469.48, $p < .001$	χ^2 = 1,354.45, $p < .001$	χ^2 = 1,749.63, $p < .001$
Minimum fit = .1786389	Minimum fit = .1695611	Minimum fit = .1078952
if 500 cases, χ^2 = 178.28, p = .40	if 500 cases, χ^2 = 169.22, p = .59	if 500 cases, χ^2 = 107.68, $p \approx$ 1.00
if 600 cases, χ^2 = 214.01, p = .02	if 600 cases, χ^2 = 203.13, p = .06	if 600 cases, χ^2 = 129.26, $p \approx$ 1.00
AGFI = .97	AGFI = .97	AGFI = .97

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[1] The initial model had 8 added effects that were found to be insignificant in the validation model and which were subsequently deleted. The time-specific models did not contain these effects. However, for this comparison, those effects were retained in the validation model and estimated in the combined model.

[2] An interesting problem emerged when we attempted to estimate the combined model. Although we had not encountered identification problems with the numerous models estimated throughout the model generating process, we could not obtain an estimate for the effect of knife or gun involvement on threats of harm (Model 1). We repeatedly obtained messages that the effect was underidentified. Consequently, we fixed the effect at the midpoint between the effects estimated in the initial model and the validation model (2.20).

(continued...)

standardized residuals > ±2.0 = 10.8%	standardized residuals > ±2.0 = 14.3%	standardized residuals > ±2.0 = 17.8%
largest standardized residual: *reported being called names* and *reported police support* observed correlation = .49 model-implied correlation = .43	largest standardized residual: *reported being beaten up* and *reported clergy support* observed correlation = .18 model-implied correlation = .24	largest standardized residual: *reported age* and *reported physician/nurse support* observed correlation = -.02 model-implied correlation = -.08

Table 2 provides the structural coefficients for the three estimates of Model 3, in addition to the estimates for the one-year and ten-year models.

Table 2 The Structural Coefficients of the Initial, Validation, Combined, One-Year, and Ten-Year Models

Cause	Effect	Initial Model	Validation Model	Combined Model	One-Year Model	Ten-Year Model
Thrown	Severity of Physical Abuse	1.00 (0.04)	1.00 (0.04)	1.00 (0.04)	1.00 (0.06)	1.00 (0.05)
Pushed	"	1.00 (0.05)	1.00 (0.05)	1.00 (0.06)	1.00 (0.09)	1.00 (0.07)
Slapped	"	1.00 (0.04)	1.00 (0.04)	1.00 (0.05)	1.00 (0.06)	1.00 (0.06)
Kicked	"	2.00 (0.07)	2.00 (0.07)	2.00 (0.08)	2.00 (0.11)	2.00 (0.10)
Hit with an Object	"	3.00 (0.08)	3.00 (0.08)	3.00 (0.09)	3.00 (0.13)	3.00 (0.11)
Beaten Up	"	5.00 (0.16)	5.00 (0.17)	5.00 (0.18)	5.00 (0.26)	5.00 (0.24)
Choked	"	5.00 (0.14)	5.00 (0.16)	5.00 (0.16)	5.00 (0.23)	5.00 (0.21)
Knife or Gun Involved	"	8.00 (0.19)	8.00 (0.20)	8.00 (0.21)	8.00 (0.30)	8.00 (0.28)

(continued...)

Dominance/ Control	"	3.02^{*,2} (0.44^{*,2})	2.48^{*,2} (0.39^{*,2})	2.20^{*,2} (0.36^{*,2})	-0.16^{2} (-0.04^{2})	0.41^{2} (0.08^{2})
Threatened	Threats of Harm	1.00 (0.78)	1.00 (0.66)	1.00 (0.71)	1.00 (0.68)	1.00 (0.65)
Knife or Gun Involved	"	0.63 (0.26)	1.21 (0.42)	0.92^{3} (0.35^{3})	1.21 (0.40)	1.21 (0.42)
Forced Sex	Sexual Abuse	1.00 (0.92)	1.00 (0.92)	1.00 (0.92)	1.00 (0.92)	1.00 (0.92)
Jealous	Dominance or Control	1.00 (0.31)	1.00 (0.31)	1.00 (0.31)	1.00 (0.29)	1.00 (0.29)
Contact Limited	"	1.00 (0.29)	1.00 (0.29)	1.00 (0.29)	1.00 (0.28)	1.00 (0.27)
Monitored	"	1.00 (0.32)	1.00 (0.32)	1.00 (0.32)	1.00 (0.31)	1.00 (0.28)
Limited to Finances	"	1.00 (0.23)	1.00 (0.24)	1.00 (0.24)	1.00 (0.20)	1.00 (0.25)
Called Names	Emotional Abuse	1.00 (0.92)	1.00 (0.92)	1.00 (0.92)	1.00 (0.92)	1.00 (0.92)
Occurred During Pregnancy	Physical Injury	0.25* (0.07*)	0.19* (0.05*)	0.21* (0.06*)	0.49* (0.12*)	0.28* (0.07*)
Frequency	"	-0.01 (-0.03)	-0.01 (-0.02)	-0.01* (-0.03*)	-0.01 (-0.02)	-0.01 (-0.03)
Thrown	"	0.24^{*,2} (0.08^{*,2})	0.06^{2} (0.02^{2})	0.13^{*,2} (0.04^{*,2})	N.E.^{1}	N.E.
Kicked	"	0.45^{*,2} (0.16^{*,2})	0.95^{*,2} (0.30^{*,2})	0.64^{*,2} (0.21^{*,2})	0.72^{*,2} (0.20^{*,2})	0.80^{*,2} (0.22^{*,2})
Hit with an Object	"	0.22^{*,2} (0.06^{*,2})	-0.06^{2} (-0.02^{2})	0.07^{2} (0.02^{2})	N.E.	N.E.
Beaten Up	"	0.88^{*,2} (0.28^{*,2})	0.46^{*,2} (0.13^{*,2})	0.63^{*,2} (0.19^{*,2})	-0.07^{2} (-0.26^{2})	0.59^{*,2} (0.15^{*,2})
Knife or Gun Involved	"	-0.36^{*,2} (-0.08^{*,2})	-0.76^{*,2} (-0.16^{*,2})	-0.64^{*,2} (-0.14^{*,2})	-1.38^{*,2} (-0.25^{*,2})	-0.53^{*,2} (-0.10^{*,2})

(continued...)

Physical Abuse	"	0.04* (0.41*)	0.07* (0.60*)	0.07* (0.57*)	0.18* (0.87*)	0.09* (0.50*)
Sexual Abuse	"	-0.22* (-0.07*)	-0.14* (-0.04*)	-0.17* (-0.05*)	-0.08 (-0.02)	0.27* (0.07*)
Occurred During Pregnancy	Psycho-pathology	0.11* (0.06*)	-0.06* (-0.03*)	0.04* (0.02*)	-0.12 (-0.05)	0.07 (0.04)
Frequency	"	0.03* (0.14*)	0.04* (0.21*)	0.04* (0.18*)	0.06* (0.25*)	0.04* (0.18*)
Pushed	"	0.25*[,2] (0.23*[,2])	0.34*[,2] (0.34*[,2])	0.29*[,2] (0.28*[,2])	0.36*[,2] (0.27*[,2])	0.30*[,2] (0.27*[,2])
Contact Limited	"	-0.21*[,2] (-0.16*[,2])	-0.07*[,2] (-0.06*[,2])	-0.14*[,2] (-0.11*[,2])	0.00 (0.00)	-0.22*[,2] (-0.14*[,2])
Physical Abuse	"	-0.01* (-0.20*)	-0.02* (-0.37*)	-0.02* (-0.30*)	-0.03* (-0.23*)	0.01* (0.09*)
Threats of Harm	"	0.19* (0.20*)	0.06* (0.09*)	0.13* (0.16*)	0.46* (0.44*)	-0.06 (-0.08)
Sexual Abuse	"	0.12* (0.07*)	-0.03 (-0.02)	0.06* (0.04*)	0.16 (0.08)	0.15* (0.08*)
Dominance/ Control	"	0.15* (0.41*)	0.20* (0.58*)	0.17* (0.48*)	-0.00 (-0.01)	0.11* (0.28*)
Emotional Abuse	"	0.20* (0.19*)	0.20* (0.20*)	0.20* (0.20*)	0.11 (0.08)	0.09* (0.08*)
Anger	"	-0.15*[,2] (-0.08*[,2])	-0.41*[,2] (-0.23*[,2])	-0.27*[,2] (-0.15*[,2])	-0.15*[,2] (-0.08*[,2])	-0.29*[,2] (-0.16*[,2])
Occurred During Pregnancy	Altered Psyche	0.11* (0.08*)	0.05 (0.03)	0.09* (0.06*)	-0.19* (-0.12*)	0.08* (0.05*)
Frequency	"	0.05* (0.33*)	0.03* (0.22*)	0.04* (0.27*)	0.05* (0.31*)	0.08* (0.47*)
Jealous	"	-0.18*[,2] (-0.19*[,2])	-0.16*[,2] (-0.19*[,2])	-0.17*[,2] (-0.19*[,2])	-0.21*[,2] (-0.18*[,2])	-0.15*[,2] (-0.13*[,2])
Limited to Finances	"	-0.18*[,2] (-0.15*[,2])	-0.01[2] (-0.01[2])	-0.09*[,2] (-0.08*[,2])	N.E.	N.E.
Physical Abuse	"	0.00 (0.03)	-0.01* (-0.14*)	-0.00 (-0.06)	0.02* (0.20*)	0.01* (0.11*)

(continued...)

Threats of Harm	"	-0.03 (-0.04)	0.09* (0.16*)	0.04* (0.06*)	0.16* (0.23*)	-0.09* (-0.14*)
Sexual Abuse	"	0.02 (0.02)	-0.09* (-0.08*)	-0.04* (-0.03*)	-0.03 (-0.02)	-0.08 (-0.06)
Dominance/ Control	"	0.11* (0.37*)	0.09* (0.36*)	0.10* (0.36*)	0.09* (0.26*)	-0.01 (-0.02)
Emotional Abuse	"	0.08* (0.09*)	0.11* (0.14*)	0.09* (0.12*)	-0.12* (-0.12*)	0.06 (0.06)
Occurred During Pregnancy	Anger	0.02 (0.02)	-0.03 (-0.03)	-0.00 (-0.00)	0.09* (0.07*)	0.07* (0.06*)
Frequency	"	0.02* (0.17*)	-0.01* (-0.13*)	0.00 (0.01)	-0.01 (-0.07)	0.00 (0.03)
Pushed	"	0.19^{*,2} (0.32^{*,2})	0.27^{*,2} (0.47^{*,2})	0.23^{*,2} (0.40^{*,2})	0.36^{*,2} (0.50^{*,2})	0.23^{*,2} (0.37^{*,2})
Physical Abuse	"	-0.01* (-0.37*)	-0.01* (-0.20*)	-0.01* (-0.26*)	-0.01* (-0.14*)	-0.00 (-0.09)
Threats of Harm	"	0.01 (0.02)	0.04* (0.10*)	0.03* (0.06*)	-0.02 (-0.03)	0.01 (0.01)
Sexual Abuse	"	0.04 (0.04)	0.00 (0.00)	0.02 (0.02)	-0.09 (-0.08)	0.11* (0.11*)
Dominance/ Control	"	0.06* (0.30*)	0.06* (0.32*)	0.06* (0.28*)	0.02 (0.08)	0.04* (0.15*)
Emotional Abuse	"	0.07* (0.12*)	0.05* (0.09*)	0.06* (0.11*)	0.19* (0.24*)	-0.09* (-0.13*)
Occurred During Pregnancy	Alcohol Use	-0.03* (-0.04*)	0.01 (0.02)	-0.00 (-0.01)	-0.04 (-0.05)	0.04* (0.05*)
Frequency	"	0.01* (0.08*)	0.01* (0.19*)	0.01* (0.12*)	0.02* (0.20*)	0.02* (0.24*)
Knife or Gun Involved	"	-0.15^{*,2} (-0.17^{*,2})	-0.18^{*,2} (-0.22^{*,2})	-0.16^{*,2} (-0.20^{*,2})	-0.35^{*,2} (-0.32^{*,2})	-0.16^{*,2} (-0.18^{*,2})
Limited to Finances	"	0.04^{*,2} (0.07^{*,2})	-0.02^{*,2} (-0.04^{*,2})	0.01^{2} (0.01^{2})	0.06^{2} (0.07^{2})	-0.07^{*,2} (-0.11^{*,2})
Physical Abuse	"	0.01* (0.26*)	0.01* (0.41*)	0.01* (0.33*)	0.01* (0.35*)	0.01* (0.33*)

(continued...)

Threats of Harm	"	-0.00 (-0.01)	-0.01 (-0.02)	0.00 (0.00)	0.06 (0.17)	-0.04* (-0.14*)
Sexual Abuse	"	0.04* (0.07*)	0.02 (0.03)	0.03* (0.06*)	0.08* (0.11*)	0.02 (0.03)
Dominance/ Control	"	0.00 (0.02)	0.01* (0.11*)	0.01* (0.08*)	-0.01 (-0.04)	0.02* (0.15*)
Emotional Abuse	"	-0.00 (-0.01)	0.05* (0.14*)	0.02* (0.06*)	-0.08* (-0.15*)	0.02 (0.05)
Psychopathology	"	$0.05^{*,2}$ $(0.14^{*,2})$	$-0.07^{*,2}$ $(-0.18^{*,2})$	-0.00^{2} (-0.01^{2})	$0.05^{*,2}$ $(0.13^{*,2})$	-0.02^{2} (-0.05^{2})
Altered Psyche	"	$0.03^{*,2}$ $(0.07^{*,2})$	-0.00^{2} (-0.01^{2})	0.01^{2} (0.02^{2})	N.E.	N.E.
Occurred During Pregnancy	Drug Use	-0.02 (-0.02)	0.02 (0.04)	0.00 (0.00)	-0.08* (-0.12*)	-0.01 (-0.01)
Frequency	"	0.01* (0.10*)	0.01* (0.08*)	0.01* (0.09*)	0.02* (0.29*)	0.01* (0.09*)
Monitored	"	$0.04^{*,2}$ $(0.10^{*,2})$	$0.03^{*,2}$ $(0.07^{*,2})$	$0.04^{*,2}$ $(0.10^{*,2})$	$0.13^{*,2}$ $(0.28^{*,2})$	$0.11^{*,2}$ $(0.18^{*,2})$
Limited to Finances	"	$0.08^{*,2}$ $(0.13^{*,2})$	$0.03^{*,2}$ $(0.05^{*,2})$	$0.06^{*,2}$ $(0.10^{*,2})$	$0.13^{*,2}$ $(0.19^{*,2})$	$0.07^{*,2}$ $(0.09^{*,2})$
Physical Abuse	"	-0.00* (-0.20*)	-0.00* (-0.23*)	-0.00* (-0.22*)	0.01* (0.16*)	0.00* (0.10*)
Threats of Harm	"	0.04* (0.11*)	0.03* (0.14*)	0.04* (0.13*)	-0.00 (-0.02)	-0.03 (-0.08)
Sexual Abuse	"	0.02 (0.03)	0.02 (0.04)	0.02* (0.04*)	0.05 (0.08)	-0.01 (-0.01)
Dominance/ Control	"	0.01 (0.08)	0.02* (0.13*)	0.01 (0.07)	-0.04* (-0.27*)	-0.02 (-0.12)
Emotional Abuse	"	0.02 (0.04)	0.03* (0.10*)	0.03* (0.08*)	-0.02 (-0.04)	0.02 (0.04)
Physical Injury	"	$0.03^{*,2}$ $(0.15^{*,2})$	0.01^{2} (0.05^{2})	$0.02^{*,2}$ $(0.10^{*,2})$	N.E.	N.E.
Anger	"	$-0.11^{*,2}$ $(-0.15^{*,2})$	$-0.06^{*,2}$ $(-0.10^{*,2})$	$-0.08^{*,2}$ $(-0.12^{*,2})$	-0.03^{2} (-0.06^{2})	$-0.08^{*,2}$ $(-0.10^{*,2})$

(continued...)

Physician/ Nurse	"	0.22* (0.30*)	0.10* (0.17*)	0.15* (0.23*)	-0.04 (-0.06)	0.25* (0.36*)
Occurred During Pregnancy	Physician/ Nurse Support	0.02 (0.02)	0.07* (0.07*)	0.04* (0.04*)	-0.08* (-0.08*)	0.08* (0.07*)
Frequency	"	0.02* (0.15*)	0.01* (0.13*)	0.01* (0.12*)	0.02* (0.21*)	0.00 (0.03)
Knife or Gun Involved	"	$-0.21^{*,2}$ ($-0.18^{*,2}$)	$-0.07^{*,2}$ ($-0.06^{*,2}$)	$-0.15^{*,2}$ ($-0.13^{*,2}$)	-0.14^{2} (-0.10^{2})	-0.09^{2} (-0.07^{2})
Physical Abuse	"	0.02* (0.63*)	0.01* (0.23*)	0.01* (0.45*)	0.01 (0.12)	0.01 (0.12)
Threats of Harm	"	-0.01 (-0.03)	0.03* (0.08*)	0.01 (0.03)	0.01 (0.01)	0.04 (0.08)
Sexual Abuse	"	0.09* (0.11*)	-0.04* (-0.05*)	0.02* (0.03*)	0.12* (0.12*)	0.02 (0.02)
Dominance/ Control	"	-0.02* (-0.08*)	0.05* (0.24*)	0.02* (0.10*)	-0.01 (-0.03)	0.04* (0.17*)
Emotional Abuse	"	0.09* (0.16*)	-0.02 (-0.03)	0.04* (0.07*)	-0.00 (-0.01)	0.02 (0.02)
Physical Injury	"	0.03* (0.11*)	0.07* (0.27*)	0.04* (0.17*)	0.11* (0.45*)	0.10* (0.38*)
Psycho-pathology	"	-0.00 (-0.01)	-0.01 (-0.02)	-0.00 (-0.01)	0.02 (0.05)	0.00 (0.00)
Altered Psyche	"	-0.04* (-0.06*)	-0.01 (-0.02)	-0.02* (-0.03*)	-0.01 (-0.02)	0.01 (0.01)
Anger	"	-0.03* (-0.03*)	-0.08* (-0.08*)	-0.05* (-0.05*)	-0.04 (-0.05)	0.00 (0.00)
Alcohol Use	"	-0.16* (-0.12*)	-0.08* (-0.05*)	-0.13* (-0.09*)	-0.10* (-0.08*)	-0.07* (-0.05*)
Clergy	"	$0.19^{*,2}$ ($0.10^{*,2}$)	$0.21^{*,2}$ ($0.11^{*,2}$)	$0.22^{*,2}$ ($0.11^{*,2}$)	$0.41^{*,2}$ ($0.21^{*,2}$)	$0.30^{*,2}$ ($0.17^{*,2}$)
Occurred During Pregnancy	Informal Support	0.04* (0.03*)	0.07* (0.05*)	0.06* (0.04*)	0.12* (0.07*)	0.07 (0.05*)
Frequency	"	0.02* (0.13*)	0.03* (0.21*)	0.03* (0.18*)	0.03* (0.14*)	0.02* (0.14*)

(continued...)

Pushed	"	$0.37^{*,2}$ $(0.45^{*,2})$	$0.38^{*,2}$ $(0.45^{*,2})$	$0.37^{*,2}$ $(0.44^{*,2})$	$0.41^{*,2}$ $(0.42^{*,2})$	$0.30^{*,2}$ $(0.33^{*,2})$
Monitored	"	$0.19^{*,2}$ $(0.21^{*,2})$	$0.19^{*,2}$ $(0.21^{*,2})$	$0.19^{*,2}$ $(0.21^{*,2})$	$0.25^{*,2}$ $(0.21^{*,2})$	0.03^{2} (0.02^{2})
Physical Abuse	"	-0.02* (-0.42*)	-0.02* (-0.42*)	-0.02* (-0.42*)	-0.00 (-0.05)	-0.02* (-0.29*)
Threats of Harm	"	0.26* (0.37*)	0.13* (0.22*)	0.19* (0.29*)	0.05 (0.06)	0.20* (0.31*)
Sexual Abuse	"	-0.01 (-0.00)	0.00 (0.00)	0.00 (0.00)	-0.07 (-0.05)	0.13* (0.09*)
Dominance/ Control	"	0.10* (0.36*)	0.12* (0.43*)	0.10* (0.36*)	-0.03 (-0.09)	0.04* (0.13*)
Emotional Abuse	"	0.26* (0.31*)	0.22* (0.26*)	0.23* (0.28*)	0.15* (0.14*)	0.05 (0.05)
Physical Injury	"	-0.00 (-0.01)	-0.02* (-0.05*)	-0.01 (-0.02)	-0.04* (-0.09*)	0.04* (0.12*)
Psychopathology	"	-0.11* (-0.14*)	-0.09* (-0.11*)	-0.09* (-0.11*)	0.06* (0.09*)	0.08* (0.09*)
Altered Psyche	"	-0.05* (-0.05*)	-0.08* (-0.07*)	-0.06* (-0.06*)	0.06* (0.06*)	0.03 (0.03)
Anger	"	-0.13* (-0.09*)	-0.18* (-0.12*)	-0.15* (-0.10*)	0.03 (0.02)	-0.04 (-0.03)
Alcohol Use	"	0.06* (0.03*)	-0.07* (-0.03*)	-0.01 (-0.00)	0.19* (0.09*)	0.02 (0.01)
Drug Use	"	-0.21* (-0.10*)	-0.20* (-0.08*)	-0.20* (-0.09*)	-0.01 (-0.01)	-0.08* (-0.04*)
Occurred During Pregnancy	Clergy Support	0.05* (0.11*)	0.03* (0.05*)	0.04* (0.09*)	0.01 (0.02)	0.05* (0.08*)
Frequency	"	0.01* (0.26*)	0.01* (0.12*)	0.01* (0.19*)	0.02* (0.40*)	0.01* (0.11*)
Choked	"	$-0.09^{*,2}$ $(-0.17^{*,2})$	$0.03^{*,2}$ $(0.06^{*,2})$	$-0.03^{*,2}$ $(-0.07^{*,2})$	-0.06^{2} (-0.10^{2})	-0.02^{2} (-0.03^{2})
Physical Abuse	"	0.01* (0.33*)	0.00* (0.20*)	0.01* (0.28*)	0.01* (0.31*)	-0.01* (-0.26*)

(continued...)

Threats of Harm	"	-0.04* (-0.15*)	0.01 (0.03)	-0.01* (-0.06*)	-0.05* (-0.21*)	0.05* (0.18*)
Sexual Abuse	"	0.01 (0.03)	-0.02 (-0.04)	-0.00 (-0.01)	0.07* (0.15*)	0.03 (0.05)
Dominance/ Control	"	0.00 (0.04)	0.01* (0.10*)	0.01* (0.07*)	-0.00 (-0.03)	0.02* (0.13*)
Emotional Abuse	"	0.02* (0.08*)	0.01 (0.04)	0.02* (0.07*)	-0.04 (-0.11)	0.04* (0.10*)
Physical Injury	"	-0.03* (-0.22*)	-0.03* (-0.21*)	-0.03* (-0.21*)	-0.01 (-0.05)	-0.00 (-0.01)
Psycho-pathology	"	-0.01 (-0.02)	0.01 (0.02)	-0.01 (-0.02)	-0.01 (-0.04)	0.02 (0.05)
Altered Psyche	"	-0.01 (-0.03)	0.00 (0.01)	-0.00 (-0.01)	0.00 (0.00)	0.02 (0.05)
Anger	"	-0.01 (-0.01)	-0.02 (-0.04)	-0.01 (-0.03)	0.00 (0.01)	-0.02 (-0.03)
Alcohol Use	"	-0.08* (-0.11*)	0.02 (0.02)	-0.04* (-0.05*)	-0.04 (-0.06)	0.00 (0.00)
Drug Use	"	0.12* (0.17*)	0.02 (0.03)	0.07* (0.09*)	-0.05 (-0.07)	0.07* (0.08*)
Occurred During Pregnancy	Shelter Support	0.05* (0.10*)	0.00 (0.01)	0.03* (0.06*)	0.03 (0.04)	0.01 (0.03)
Frequency	"	-0.01* (-0.12*)	0.01* (0.14*)	-0.00 (-0.01)	-0.01 (-0.08)	0.00 (0.05)
Physical Abuse	"	0.01* (0.73*)	0.01* (0.50*)	0.01* (0.59*)	0.04* (1.10*)[4]	0.00* (0.27*)
Threats of Harm	"	-0.01 (-0.04)	-0.05* (-0.28*)	-0.03* (-0.14*)	-0.02 (-0.07)	-0.02* (-0.13*)
Sexual Abuse	"	0.03* (0.06*)	0.02* (0.06*)	0.03* (0.07*)	-0.02 (-0.03)	0.02 (0.06)
Dominance/ Control	"	-0.01* (-0.13*)	-0.01 (-0.06)	-0.01* (-0.06*)	-0.03* (-0.18*)	0.00 (0.01)
Emotional Abuse	"	0.02* (0.06*)	0.02* (0.06*)	0.02* (0.06*)	0.08* (0.18*)	-0.00 (-0.02)

(continued...)

Physical Injury	"	-0.03* (-0.20*)	0.00 (0.03*)	-0.01* (-0.11*)	-0.05* (-0.28*)	-0.00 (-0.04)
Psycho-pathology	"	0.01* (0.05*)	-0.01 (-0.04)	0.01 (0.03)	-0.01 (-0.03)	-0.01 (-0.03)
Altered Psyche	"	0.03* (0.08*)	-0.01 (-0.04)	0.01* (0.03*)	-0.01 (-0.02)	0.01 (0.03)
Anger	"	-0.01 (-0.01)	-0.03* (-0.07*)	-0.02* (-0.05*)	-0.05* (-0.09*)	-0.02* (-0.06*)
Alcohol Use	"	-0.04* (-0.05*)	-0.01 (-0.02)	-0.01 (-0.02)	0.13* (0.15*)	-0.03* (-0.06*)
Drug Use	"	0.08* (0.10*)	0.01 (0.01)	0.05* (0.06*)	-0.10* (-0.09*)	0.06* (0.14*)
Clergy	"	-0.13^{*,2} (-0.12^{*,2})	0.02^{2} (0.03^{2})	-0.05^{*,2} (-0.06^{*,2})	N.E.	N.E.
Occurred During Pregnancy	Counselling Support	0.00 (0.00)	-0.03* (-0.04*)	-0.01 (-0.02)	0.12* (0.11*)	0.00 (0.01)
Frequency	"	0.01* (0.09*)	0.01* (0.15*)	0.01* (0.13*)	-0.03* (-0.22*)	0.03* (0.33*)
Knife or Gun Involved	"	-0.18^{*,2} (-0.19^{*,2})	0.14^{*,2} (0.14^{*,2})	-0.05^{*,2} (-0.05^{*,2})	-0.26^{*,2} (-0.18^{*,2})	0.09^{*,2} (0.11^{*,2})
Contact Limited	"	0.11^{*,2} (0.20^{*,2})	0.07^{*,2} (0.12^{*,2})	0.08^{*,2} (0.16^{*,2})	0.11^{2} (0.13^{2})	0.13^{*,2} (0.22^{*,2})
Limited to Finances	"	0.06^{*,2} (0.09^{*,2})	0.02^{2} (0.04^{2})	0.04^{*,2} (0.06^{*,2})	N.E.	N.E.
Physical Abuse	"	0.00 (0.10)	-0.00 (-0.07)	0.00 (0.02)	0.01 (0.13)	-0.01* (-0.24*)
Threats of Harm	"	0.04* (0.11*)	-0.03* (-0.10*)	0.01 (0.02)	0.10* (0.20*)	-0.03 (-0.11)
Sexual Abuse	"	-0.04* (-0.05*)	0.02 (0.03)	-0.01 (-0.01)	0.04 (0.04)	-0.03 (-0.05)
Dominance/ Control	"	-0.01 (-0.08)	0.01 (0.03)	-0.00 (-0.02)	0.03 (0.11)	-0.03* (-0.17*)
Emotional Abuse	"	-0.01 (-0.01)	0.06* (0.13*)	0.03* (0.07*)	0.14* (0.21*)	0.01 (0.02)

(continued...)

Physical Injury	"	-0.03* (-0.12*)	-0.03* (-0.13*)	-0.03* (-0.13*)	-0.06* (-0.22*)	-0.01 (-0.07)
Psycho-pathology	"	0.06* (0.14*)	0.02 (0.04)	0.03* (0.08*)	0.03 (0.06)	0.03* (0.07*)
Altered Psyche	"	0.04* (0.08*)	0.06* (0.10*)	0.05* (0.08*)	0.07* (0.10*)	0.05* (0.10*)
Anger	"	0.01 (0.01)	0.01 (0.01*)	0.01 (0.01)	-0.06* (-0.07*)	0.00 (0.00)
Alcohol Use	"	-0.01 (-0.01)	0.07* (0.06*)	0.03* (0.03*)	0.06 (0.04)	0.03 (0.03)
Drug Use	"	0.04* (0.04*)	-0.04 (-0.03)	0.01 (0.01)	-0.06 (-0.04)	0.04 (0.04)
Physician/ Nurse	"	0.15*,[2] (0.19*,[2])	0.13*,[2] (0.16*,[2])	0.14*,[2] (0.17*,[2])	0.17*,[2] (0.16*,[2])	0.19*,[2] (0.29*,[2])
Clergy	"	0.10*,[2] (0.06*,[2])	-0.02[2] (-0.02[2])	0.04*,[2] (0.03*,[2])	N.E.	N.E.
Shelter	"	0.18*,[2] (0.12*,[2])	0.32*,[2] (0.18*,[2])	0.24*,[2] (0.15*,[2])	0.11[2] (0.07[2])	0.28*,[2] (0.13*,[2])
Police	"	N.E.	N.E.	N.E.	0.22*,[2] (0.20*,[2])	N.E.
Occurred During Pregnancy	Police Support	0.15* (0.17*)	0.14* (0.14*)	0.15* (0.16*)	0.17* (0.17*)	0.19* (0.19*)
Frequency	"	0.01* (0.06*)	0.01* (0.13*)	0.01* (0.08*)	0.00 (0.02)	0.01* (0.12*)
Physical Abuse	"	0.02* (0.79*)	0.03* (0.90*)	0.03* (0.87*)	0.03* (0.64*)	0.02* (0.50*)
Threats of Harm	"	0.03* (0.06*)	-0.01 (-0.03)	0.00 (0.00)	0.06* (0.15*)	0.00 (0.00)
Sexual Abuse	"	0.03* (0.04*)	-0.09* (-0.12*)	-0.03* (-0.04*)	-0.04 (-0.05)	0.03 (0.04)
Physical Injury	"	-0.04* (-0.14*)	-0.06* (-0.23*)	-0.05* (-0.21*)	-0.08* (-0.32*)	-0.04* (-0.16*)
Psycho-pathology	"	-0.01 (-0.03)	-0.02* (-0.04*)	-0.01 (-0.02)	-0.02 (-0.04)	-0.02 (-0.04)

(continued...)

Altered Psyche	"	-0.03* (-0.05*)	0.01 (0.01)	-0.01 (-0.02)	-0.00 (-0.00)	-0.02 (-0.03)
Anger	"	-0.08* (-0.09*)	0.00 (0.00)	-0.03* (-0.03*)	-0.02 (-0.02)	-0.03 (0.03)
Alcohol Use	"	-0.17* (-0.13*)	-0.10* (-0.07*)	-0.13* (-0.10*)	-0.03 (-0.03)	-0.09* (-0.07*)
Drug Use	"	-0.04 (-0.03)	0.08* (0.05*)	0.03 (0.02)	-0.04 (-0.03)	-0.03 (-0.02)
Physician/ Nurse	"	N.E.	N.E.	N.E.	0.22^{*,2} (0.23^{*,2})	0.17^{*,2} (0.18^{*,2})
Clergy	"	N.E.	N.E.	N.E.	0.33^{*,2} (0.18^{*,2})	0.17^{*,2} (0.11^{*,2})
Household Income	Current Health Status	0.10* (0.21*)	0.12* (0.27*)	0.11* (0.24*)	0.13* (0.27*)	0.13* (0.27*)
Education	"	0.05* (0.12*)	0.03* (0.09*)	0.04* (0.11*)	0.03* (0.08*)	0.04* (0.11*)
Age	"	-0.09* (-0.15*)	-0.07* (-0.11*)	-0.08* (-0.12*)	-0.09* (-0.14*)	-0.07* (-0.10*)
Physical Injury	"	-0.01 (-0.01)	-0.04 (-0.03)	-0.02 (-0.02)	-0.01 (-0.01)	-0.02 (-0.02)
Psycho-pathology	"	-0.09 (-0.04)	-0.05 (-0.02)	-0.07* (-0.03*)	-0.08 (-0.04)	-0.06 (-0.03)
Altered Psyche	"	-0.01 (-0.00)	-0.02 (-0.01)	-0.02 (-0.01)	-0.14 (-0.05)	-0.06 (-0.02)
Anger	"	0.03 (0.01)	0.07 (0.02)	0.03 (0.01)	-0.03 (-0.01)	-0.01 (-0.00)
Alcohol Use	"	0.01 (0.00)	-0.07 (-0.01)	-0.03 (-0.01)	-0.02 (-0.00)	0.03 (0.01)
Drug Use	"	-0.24* (-0.04*)	-0.21 (-0.03)	-0.25* (-0.04*)	0.04 (0.01)	-0.56* (-0.11*)
Physician/ Nurse	"	-0.26* (-0.06*)	-0.05 (-0.01)	-0.16* (-0.04*)	-0.36 (-0.09)	-0.02 (-0.01)
Informal Support	"	-0.01 (-0.00)	-0.03 (-0.01)	-0.01 (-0.00)	0.05 (0.02)	0.08 (0.03)

(continued...)

Clergy	"	-0.45* (-0.05*)	-0.12 (-0.02)	-0.27* (-0.03*)	-0.77* (-0.10*)	-0.03 (-0.00)
Shelter Support	"	-0.12 (-0.01)	0.20 (0.02)	0.03 (0.00)	0.65* (0.11*)	-0.07 (-0.01)
Counselling Support	"	0.02 (0.01)	-0.03 (-0.01)	-0.02 (-0.00)	0.00 (0.00)	-0.35* (-0.06*)
Police Support	"	0.22* (0.05*)	-0.04 (-0.01)	0.08 (0.02)	0.13 (0.03)	0.02 (0.01)

[1] Not estimated.

[2] Coefficient arose as a modification to the basic model.

[3] Could not be estimated because underidentified. Value fixed at average value of corresponding coefficients estimated in Initial and Validation models.

[4] We acknowledge that a standardized slope of 1.1 is a sign of problems. See footnote in Chapter 8 for a discussion of this issue.

*t > 2.